

**REGULATIONS AND CURRICULUM
FOR
POSTGRADUATE DEGREE AND DIPLOMA COURSES**

2010

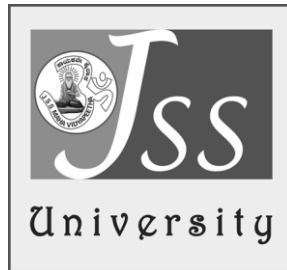


PAEDIATRICS

**JSS UNIVERSITY
JSS MEDICAL INSTITUTIONS CAMPUS
SRI SHIVARATHREESHWARA NAGARA, MYSORE 570 015
KARNATAKA, INDIA**

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Regulations & curriculum for Postgraduate Degree and Diploma Courses 2010

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The Registrar
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Sri Shivarathreeshwara Nagara, Mysore 570 015
Karnataka

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Postgraduate Medical Degree and Diploma Courses 2010

PAEDIATRICS

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CHAPTER I

Regulations for Postgraduate Degree and Diploma Courses in Medical Sciences

1. Branch of Study

1.1 Postgraduate degree courses

Post Graduate Degree courses may be pursued in the following subjects:

a) MD (Doctor of Medicine)

- i) Anaesthesiology
- ii) Anatomy
- iii) Biochemistry
- iv) Community Medicine
- v) Dermatology, Venereology and Leprosy
- vi) Forensic Medicine
- vii) General Medicine
- viii) Microbiology
- ix) Pathology
- x) Paediatrics
- xi) Pharmacology
- xii) Physiology
- xiii) Psychiatry

b) MS (Master of Surgery)

- i) General Surgery
- ii) Obstetrics and Gynaecology
- iii) Ophthalmology
- iv) Orthopedics
- v) Oto-Rhino-Laryngology

1.2 Postgraduate Diploma Courses

Post Graduate Diploma Courses may be pursued in the following subjects:

- a) Anesthaesiology (DA)
- b) Child Health (DCH)
- c) Clinical pathology (DCP)
- d) Dermatology, Venerology and Leprosy (DDVL)
- e) Obstetrics and Gynaecology (DGO)
- f) Ophthalmology (DO)
- g) Orthopaedics (D Ortho)
- h) Oto-rhino-laryngology (DLO)
- i) Psychiatry (DPM)

2. Eligibility for Admission

MD / MS Degree and Diploma courses : A candidate affiliated to this University and who has passed final year MBBS examination after pursuing a study in a medical college recognized by the Medical Council of India, or from a recognized medical college affiliated to any other university recognized as equivalent thereto and has completed one year compulsory rotating internship in a teaching institution or other institution recognized by the Medical Council of India, and has obtained permanent registration of any State Medical Council, shall be eligible for admission.

3. Obtaining Eligibility Certificate by the University before making admission

No candidate shall be admitted for any Postgraduate Degree/Diploma courses unless the candidate has obtained and produced the eligibility certificate issued by the University. The candidate has to make an application to the University with the following documents along with the prescribed fee:

- a) MBBS pass/degree certificate issued by the university.
- b) Mark cards of all the university examinations passed before MBBS course.
- c) Attempt certificate issued by the Principal.
- d) Certificate regarding the recognition of the medical college by the Medical Council of India
- e) Completion of internship certificate.
- f) In case internship was done in a non- teaching hospital, a certificate from the Medical Council of India that the hospital has been recognized for internship.
- g) Registration by any state Medical Council.
- h) Proof of ST/SC or Category I, as the case may be.

Candidates should obtain the eligibility certificate before the last date for admission as notified by the university.

A candidate who has been admitted to postgraduate course should register his / her name in the university within a month of admission after paying the registration fee.

4. Intake of students

The intake of students to each course shall be in accordance with the MCI and GOI permissions in this regard.

5. Course of study

5.1 Duration

- a) **MD, MS Degree Courses:** The course of study shall be for a period of 3 years consisting of 6 terms.
- b) **Diploma courses:** The course of study shall be for a period of 2 years consisting of 4 terms.

6. Method of training

The training of postgraduate for degree/diploma shall be residency pattern, with graded responsibilities in the management and treatment of patients entrusted to his/her care. The participation of the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, grand rounds, case demonstration, clinics, journal review meetings, CPC and clinical meetings. Every candidate should be required to participate in the teaching and training programme of undergraduate students. Training should include involvement in laboratory and experimental work, and research studies. Basic medical sciences students should be posted to allied and relevant clinical departments or institutions. Similarly, clinical subjects' students should be posted to basic medical sciences and allied specialty departments or institutions.

7. Attendance, Progress and Conduct

- 7.1** A candidate pursuing degree/diploma course, should work in the concerned department of the institution for the full period as full time student. No candidate is permitted to run a clinic/laboratory/nursing home while studying postgraduate course, nor can he/she work in a nursing home or other hospitals/clinic/laboratory while studying postgraduate course.
- 7.2** Each year shall be taken as a unit for the purpose of calculating attendance.
- 7.3** Every student shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons.
- 7.4** Every candidate is required to attend a minimum of 80% of the training during each academic year of the post graduate course. Provided, further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% attendance of training period every year.
- 7.5** Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examinations.

8. Monitoring Progress of Studies:

- 8.1 Work diary / Log Book:** Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the

candidate as well as details of clinical or laboratory procedures, if any, conducted by the candidate. The work diary shall be scrutinised and certified by the Head of the Department and Head of the Institution, and presented in the University practical/clinical examination.

- 8.2 Periodic tests:** In case of degree courses of three years duration (MD/MS, DM, M Ch.), the concerned departments may conduct three tests, two of them be annual tests, one at the end of first year and the other at the end of the second year. The third test may be held three months before the final examination. The tests may include written papers, practical / clinical and viva voce. Records and marks obtained in such tests will be maintained by the Head of the Department and sent to the University, when called for.
- 8.3** In case of diploma courses of two years duration, the concerned departments may conduct two tests, one of them at the end of first year and the other in the second year, three months before the final examination. The tests may include written papers, practical / clinical and viva voce.
- 8.4 Records:** Records and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

9. Dissertation

- 9.1** Every candidate pursuing MD/MS degree course is required to carry out work on a selected research project under the guidance of a recognised post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.
- 9.2** The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions.
- 9.3** Every candidate shall submit to the Director (Academic) of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course, on or before the dates notified by the University. The synopsis shall be sent through proper channel.
- 9.4** Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

9.5 The dissertation should be written under the following headings:

- a) Introduction
- b) Aims or Objectives of study
- c) Review of Literature
- d) Material and Methods
- e) Results
- f) Discussion
- g) Conclusion
- h) Summary
- i) References
- j) Tables
- k) Annexure

9.6 The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

9.7 Four copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), six months before final examination, on or before the dates notified by the University.

9.8 The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

9.9 Guide: The academic qualification and teaching experience required for recognition by this University as a guide for dissertation work is as per Medical Council of India, Minimum Qualifications for Teachers in Medical Institutions Regulations, 1998. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least five years teaching experience as Lecturer or Assistant Professor gained after obtaining post graduate degree shall be recognised as post graduate teachers.

Co-Guide: A Co-guide may be included provided the work requires substantial contribution from a sister department or from another medical institution recognised for teaching/training by JSS University / Medical Council of India. The co-guide shall be a recognised post graduate teacher of JSS University.

9.10 Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university.

10. Schedule of Examination

The examination for MD / MS courses shall be held at the end of three academic years (six academic terms). The examination for DM and M Ch courses shall be held at the end of three years. The examination for the diploma courses shall be held at the end of two academic years (four academic terms). For students who have already passed Post Graduate Diploma and appearing for MD examination, the examination shall be conducted after two academic years (four academic terms, including submission of dissertation) The University shall conduct two examinations in a year at an interval of four to six months between the two examination. Not more than two examinations shall be conducted in an academic year.

11. Scheme of Examination

11.1 MD / MS Degree

MD / MS Degree examinations in any subject shall consist of dissertation, written paper (Theory), Practical/Clinical and Viva voce.

11.1.1 **Dissertation:** Every candidate shall carryout work and submit a dissertation as indicated in SI NO 9. Acceptance of dissertation shall be a precondition for the candidate to appear for the final examination.

11.1.2 **Written Examination (Theory):** A written examination shall consist of four question papers, each of three hours duration. Each paper shall carry 100 marks. Out of the four papers, the 1st paper in clinical subjects will be on applied aspects of basic medical sciences. Recent advances may be asked in any or all the papers. In basic medical subjects and para-clinical subjects, questions on applied clinical aspects should also be asked.

11.1.3 **Practical / Clinical Examination:** In case of practical examination, it should be aimed at assessing competence and skills of techniques and procedures as well as testing student's ability to make relevant and valid observations, interpretations and inference of laboratory or experimental work relating to his/her subject.

In case of clinical examination, it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.

The total marks for Practical / clinical examination shall be 200.

11.1.4 **Viva Voce.** Viva Voce Examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The total marks shall be 100 and the

distribution of marks shall be as under:

- i) For examination of all components of syllabus 80 Marks
- ii) For Pedagogy 20 Marks

If there is skills evaluation, 10 marks shall be reserved for Pedagogy and 10 marks for skill evaluation.

11.1.5 **Examiners.** There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

11.1.6 **Criteria for declaring as pass in University Examination*.** A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical including clinical and viva-voce examination.

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Registrar (Evaluation).

11.1.7 **Declaration of class:** A successful candidate passing the University examination in first attempt and secures grand total aggregate 75% of marks or more will be declared to have passed the examination with distinction, 65% but below 75% declared as First Class and 50% but below 65% declared as Second Class.

A candidate passing the University examination in more than one attempt shall be declared as Pass Class irrespective of the percentage of marks.

11.2 DM/M Ch

The examination shall consist of theory, clinical/practical and viva voce examination.

11.2.1 **Theory (Written Examination):** The theory examination shall consist of four question papers, each of three hours duration. Each paper shall carry 100 marks. Out of the four papers, the first paper will be on basic medical sciences. Recent advances may be asked in IV Paper.

11.2.2 **Practical / Clinical Examination:** In case of practical examination it should be aimed at assessing competence, skills of techniques and procedures as well as testing student's ability to make relevant and valid observations,

interpretations and experimental work relevant to his / her subject.

In case of clinical examination it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.

The maximum marks for Practical / Clinical shall be 200.

11.2.3 **Viva-Voce:** Viva Voce examination shall aim at assessing thoroughly, depth of knowledge, logical reasoning, confidence and oral communication skills. The maximum marks shall be 100. This also includes spotters like instruments, anaesthesia machines, drugs, ECG, X – ray.

11.2.4 **Examiners:** There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

11.2.5 **Criteria for declaring as pass in University Examination*:** A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory (2) Practical including clinical and viva voce examination.

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Registrar (Evaluation).

11.3 Diploma Examination:

Diploma examination in any subject shall consist of theory (written papers), Practical / Clinical and Viva - Voce.

11.3.1 **Theory:** There shall be three written question papers each carrying 100 marks. Each paper will be of three hours duration. In clinical subjects one paper out of this shall be on basic medical sciences. In basic medical subjects and Para- clinical subjects, questions on applied clinical aspects should also be asked.

11.3.2 **Practical Clinical Examination:** In case of practical examination it should be aimed at assessing competence, skills related to laboratory procedures as well as testing students ability to make relevant and valid observations,

interpretation of laboratory or experimental work relevant to his/her subject.

In case of clinical examination, it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.

The maximum marks for Practical / Clinical shall be 150.

11.3.3 **Viva Voce Examination.** Viva Voce examination should aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The total marks shall be 50. This also includes spotters like instruments, anesthesia machines, drugs, ECG, X-ray.

11.3.4 Criteria for declaring as pass in University Examination* A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical including clinical and viva voce examination.

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Registrar (Evaluation).

11.3.5 **11.3.5 Declaration of distinction.** A successful candidate passing the University examination in first attempt will be declared to have passed the examination with distinction, if the grand total aggregate marks is 75 percent and above. Distinction will not be awarded for candidates passing the examination in more than one attempt.

11.3.6 **Examiners.** There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

12. Number of Candidates per day

The maximum number of candidates for practical / clinical and viva-voce examination shall be as under:

MD /MS Course: Maximum of 6 per day.

Diploma Course: Maximum of 8 per day.

CHAPTER II

GOALS AND GENERAL OBJECTIVES OF POSTGRADUATE MEDICAL EDUCATION PROGRAM

GOAL

The goal of postgraduate medical education shall be to produce competent specialists and/or medical teachers:

1. Who shall recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national health policy.
2. Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
3. Who shall be aware of the contemporary advance and developments in the discipline concerned.
4. Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology and
5. Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

GENERAL OBJECTIVES

At the end of the postgraduate training in the discipline concerned the student shall be able to:

1. Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health section.
2. Practice the speciality concerned ethically and in step with the principles of primary health care.
3. Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
4. Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
5. Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.

6. Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
7. Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
8. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
9. Play the assigned role in the implementation of national health programme, effectively and responsibly.
10. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
11. Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
12. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
13. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
14. Function as an effective leader of a health team engaged in health care, research or training.

STATEMENT OF THE COMPETENCIES: Keeping in view the general objectives of postgraduate training, each discipline shall aim at development of specific competencies which shall be defined and spelt out in clear terms. Each department shall produce a statement and bring it to the notice of the trainees in the beginning of the programme so that he or she can direct the efforts towards the attainment of these competencies.

COMPONENTS OF THE POSTGRADUATE CURRICULUM:

The major components of the Postgraduate curriculum shall be:

- Theoretical knowledge
- Practical and clinical skills
- Thesis skills.
- Attitudes including communication skills.
- Training in research methodology.

(Source: Medical Council of India, Regulations on Postgraduate Medical Education, 2000)

CHAPTER III
Postgraduate Courses in Pediatrics
M D PEDIATRICS

Goals

The goals of postgraduate training in Pediatrics would be to train a basic medical graduate (MBBS):

- To practice as a Child Health specialist equipped with appropriate knowledge and skills necessary to care for the normal and sick child.
- To practice Child Health in the community (urban or rural) and to perform professionally at all levels of the existing health care system.
- To practice with empathy and the highest ethical standards of the profession.
- To continue to strive for excellence by continuing medical education throughout his or her professional career.
- To teach by sharing knowledge and skills with colleagues.
- To research and find solutions to challenges in health care.

Objectives

The objectives to be fulfilled at the completion of the course are as follows:
At the end of the program, the student should be able to:

- Knowledge:
 - Describe, identify and monitor normal patterns of growth and development of children.
 - Describe aetio-pathogenesis, principles of clinical diagnosis, investigations and treatment of diseases of childhood.
 - Demonstrate an understanding of basic (pre and para-clinical) sciences and its application to the normal and abnormal processes.
 - Analyze clinical and investigation data approach and manage a health-related problem.
 - Identify and understand socio-economic-environmental-cultural factors in health care.
 - Recognize problems outside his or her abilities and appropriately refer.
 - Update one's knowledge and skills by self directed learning and by participating in continued medical education programs utilizing media – spoken, written, print and electronic.
 - Teach and share knowledge and skills with colleagues.
 - Audit and analyze work, assist in research and publish scientific articles in peer reviewed journals.

- Skills:
 - Elicit an appropriate clinical history.
 - Demonstrate appropriate clinical physical examination skills on children.
 - Plan, decide upon and interpret appropriate cost effective investigations.
 - Perform essential procedures both diagnostic and therapeutic.
 - Manage, resuscitate and stabilize children in pediatric or neonatal emergencies.

- Communication and attitudes:
 - Communicate appropriately with guardians and children, assisting in their health care decision making.
 - Practice child health care at the highest ethical level, protecting the child at all costs.
 - Respect patient's (and their guardian's) rights and professional relationships (doctor-doctor, doctor-nurse, doctor-patient, doctor-society).
 - Apply the highest level of ethics in research, publication, references and practice of pediatrics.

Course Contents

Knowledge Must Know	Knowledge Desirable to know
The Field of Pediatrics	
1. Evaluating medical literature critical appreciation of journal articles	1. History of pediatrics
2. Overview of child health	2. Traditions and cultural issues pertaining to child care
3. The normal child	
4. Preventive and social pediatrics	
5. Epidemiology, statistics and research methodology including dissertation	
6. Ethical issues in pediatrics	
Growth and Development	
1. Biopsychological models of development	1. IQ assessment
2. Fetal growth and development	
3. The newborn G/D	

Knowledge Must Know

Knowledge Desirable to know

Growth and Development (Contd..)

4. Infant, preschool, early school, adolescence G/D
5. Assessment of growth
6. Development assessment
7. Standards / normograms (including Indian)
8. Approach to short stature
9. Approach to Obesity
10. Approach to undernutrition

Psychological Disorders

1. Assessment and interviewing
2. CNS injury, vegetative disorders-rumination
3. Pica, enuresis, encopresis, sleep habit disorders
4. Anxiety disorders
5. Suicide
6. ADHD
7. Autism

8. Poor scholastic performance in school age child
9. Psychosomatic illness

Psychiatric considerations of:

1. Mood disorders
2. Disruptive behavioral disorders
3. Sexual behavior variations
4. Psychosis
5. Psychological treatment
6. Neurodevelopment dysfunction
7. Learning disorders

Social Issues

1. Adoption
2. Street child
3. Child care
4. Separation, death
5. Abuse and neglect
6. Child labor
7. Media (TV, movies) and its effect on the child

1. Effects of a mobile society
2. Impact of violence
3. Street child
4. Single parent child
5. Foster care

Children with Special Needs

1. Failure to thrive - problems, approach and evaluation
2. Developmental disabilities, chronic illness

1. Children in poverty
2. Homeless children

Knowledge Must Know

Knowledge Desirable to know

Children with Special Needs

(Contd..)

- | | |
|-----------------------------------------------------------|---------------------|
| 3. Mental retardation - problems, approach and evaluation | 3. Foster children |
| 4. Care of child with fatal illness | 4. Runaway children |

Nutrition

- | | |
|-----------------------------------------------------------------------------------------------------|------------------|
| 1. Nutritional Requirements- water, energy, proteins, CHO, fats, minerals, vitamins, | 1. Athletic diet |
| 2. Diet/nutrition evaluation | |
| 3. Diet for later childhood and adolescent | |
| 4. Infant and child feeding | |
| 5. Breast milk feeding, human lactation management, BFHI | |
| 6. Nutrition values of Indian foods, recipes | |
| 7. Weaning foods | |
| 8. Feeding through 1st and 2nd years | |
| 9. Nutritional disorders including obesity | |
| 10. Protein energy malnutrition | |
| 11. Vitamin deficiencies and excess | |
| 12. Micro-nutrient malnutrition | |
| 13. Nutrition in special situations— LBW, premature, chronic illness, surgery, critically ill child | |
| 14. TPN | |

Patho-physiology of body fluids and fluid therapy (approach and management)

1. Physiology of fluids, electrolytes and acid bases.
2. Dehydration and fluid management.
3. Dyselectrolytemia.
4. Acid base disorders
5. Special situations - pyloric stenosis, CNS disorders, burns, peri-operative, endocrine disorders, renal failure.

Knowledge Must Know

Acutely ill child

1. Evaluation in emergency.
2. Injury control.
3. Emergency medical services
4. Pediatric critical care, respiratory failure, ventilation circulatory failure and shock acute neurological dysfunction resuscitation - basic and advanced, NALS/PALS post resuscitation stabilization cold/heat injury.
5. Transportation of sick child/neonate.
6. Post-operative supportive care.

Emergencies/ Critical Care Pediatrics

1. Fluid abnormalities.
2. Electrolyte abnormalities.
3. Thermoregulation problems.
4. Acute renal failure.
5. Hypertensive crisis.
6. Congestive cardiac failure.
7. Cardiogenic shock.
8. Pericardial tamponade.
9. Cyanotic spells.
10. Unstable and stable arrhythmias.
11. Vomiting and diarrhea.
12. GI bleeds - hematemesis, melena, hematochezia.
13. Adrenal crisis.
14. Metabolic problems - hyperammonemia, lactic acidosis, acid base abnormalities, hypoglycemia.
15. Septicemic shock, viral infections and shock.
16. Pneumothorax, empyema, pleural effusion, ascites.
17. Severe anemia, bleeding child, neutropenia.
18. Pain management, drug therapy.
19. ARDS.
20. Respiratory failure.

Knowledge Desirable to know

1. Pediatric anesthesia.
2. Organization of a PICU/NICU.
3. Equipment for intensive care.

Knowledge Must Know

Emergencies/ Critical Care Pediatrics (Contd..)

21. Burns/ electrocution.
22. Animal bites.
23. Preanesthetic check up PAC.
24. Sick cell crisis, severe complicated malaria.
25. Acute severe asthma, bronchiolitis.
26. Status epilepticus.
27. Febrile seizure.
28. Coma, increased intra-cranial pressure.
29. Cardiopulmonary resuscitation.
30. Shock.
31. Upper airway obstruction.
32. Near drowning.
33. Poisoning.
34. Snake bite.
35. Scorpion sting.
36. Physical abuse.
37. Sexual abuse.

Human Genetics

1. Molecular basis of disorders
2. Molecular diagnosis
3. Inheritance patterns
4. Chromosomal/genetic clinical abnormalities
5. Genetic counseling
6. Dysmorphism
7. Gene therapy

Metabolic Disorders

1. Approach to IEM defects.
2. Common aminoacid metabolic defects.
3. Porphyria.
4. Common lipid metabolism.
5. Common CHO metabolism.
6. Mucopolysaccharidosis.
7. Hypoglycemia.

Knowledge Desirable to know

1. Human genome project

1. Purine and pyrimidine metabolism.
2. Rare amino acid metabolic defects.
3. Rare lipid metabolism.
4. Rare CHO metabolism.
5. Mucopolipidosis.

Knowledge Must Know

Knowledge Desirable to know

Fetus and Newborn

1. Mortality and morbidity
2. Newborn — history, examination, routine delivery care, nursery care, bonding
3. High risk pregnancies
4. Dysmorphology
5. Fetus
 - Growth/development fetal distress
 - Maternal diseases
 - Maternal medications
 - Detection, treatment, prevention of fetal disease
 - Antenatal diagnosis Fetal therapy
 - Antenatal therapy
 - Counseling
 - Teratogens, radiation
6. High risk infant
 - Multiple pregnancies
 - Prematurity
 - Postdated
 - IUGR/LBW
 - LFD
7. Congenital anomalies/malformations
8. Birth injuries
9. Hypoxia - ischemia, asphyxia
10. Organization and levels of newborn care
11. Normal Newborn
12. Common problems in a normal newborn
13. Delivery room emergencies
14. Respiratory disorders
15. Oxygen therapy, toxicity
16. Ventilation
17. GI disturbances including NEC
18. Hyperbilirubinemia
19. Cardiac problems
20. PPHN

Knowledge Must Know

Knowledge Desirable to know

Fetus and Newborn (Contd..)

21. Blood disorders
 - Polycythemia
 - Anemia
 - Hemorrhagic disease of newborn
 - Hemolytic disease of newborn
 - Thrombocytopenia
22. Genitourinary disturbances
23. Metabolic disorders.
24. Endocrine disorders- IDM, CAH
25. Ambiguous genitalia
26. Fluid and electrolytes in newborn care
27. Nutrition and feeding the newborn - term, preterm, LBW, IUGR
28. Neonatal transport
29. Surgical problems
 - TEF
 - Anorectal malformations
 - Diaphragmatic hernia/eventeration
 - Hirschsprung
 - Urogenital anomalies
 - NEC
 - Congenital lobar emphysema
 - Volvulus
30. Thermoregulation
31. Neonatal follow-up

Neonatal Infections

1. Epidemiology
2. Intrauterine infections
3. Viral infections
4. Neonatal sepsis/meningitis
5. Pneumonia
6. UTI
7. Hepatitis
8. Nosocomial

Knowledge Must Know
Neonatal infections (Cont..)

9. Universal precautions
10. Prevention of infections
11. Therapy- antimicrobials, adjuvants

Adolescent health

1. Epidemiology
2. Sexual development and SMR stages
3. Deliveries of health care
4. Pregnancy
5. Contraception
6. STD
7. Menstrual problems
8. Anorexia nervosa, bulimia

Immunological system

1. Basics of immunology
2. Approach to immunodeficiency
3. HIV
4. Bone marrow transplantation
5. Primary B cell diseases
6. Primary T cell diseases
7. Complement and phagocytic diseases
8. Chronic granulomatous disease
9. Chediak Higashi disease
10. Neutrophil abnormalities
11. Adhesion disorders

Allergic disorders

1. Allergy and immunological basis
2. Diagnosis
3. Therapy — principles
4. Allergic rhinitis
5. Asthma
6. Atopic dermatitis
7. Urticaria, angioedema
8. Anaphylaxis
9. Serum sickness
10. Adverse drug reactions

Knowledge Desirable to know

1. Depression
2. Suicide
3. Substance abuse
4. Sleep disorders
5. Skin/Orthopedics

Knowledge Must Know

Rheumatology

1. Autoimmunity
2. Laboratory evaluation
3. JRA
4. SLE

5. Vasculitis
6. Dermatomyositis
7. Erythema nodosum

Infectious diseases

1. Fever
2. Clinical use of micro Lab
3. Fever without a focus
4. Sepsis and shock
5. CNS Infections
6. Pneumonia
7. Gastroenteritis
8. Osteomyelitis, Septic arthritis
9. Compromised host infections
10. Bacterial infections
11. Anaerobic infections
12. Viral infections
13. Mycotic infections
 - Candidiasis
 - Aspergillosis
14. Parasitic infections
 - Helminthiasis
15. Protozoal
 - Malaria
 - Kalazar
 - Leishmania, giardia
 - Amoeba
16. Antiparasitic drugs

Knowledge Desirable to know

1. Ankylosis spondylosis
2. Neonatal Lupus
3. Scleroderma
4. Mixed connective tissue Disease
5. Behcet
6. Sjogren
7. Non rheumatic conditions
8. Pain syndromes
 - Panniculitis
 - Polychondritis
 - Amyloidosis

Knowledge Must Know

Knowledge Desirable to know

Infectious diseases (Contd..)

17. Antimicrobials
18. Antivirals drugs, interferon
19. Preventive measures
 - Health advice for travelling
 - Infection control
20. Immunization
 - Principles
 - Schedules
 - Controversies
 - Standard and optional vaccines
 - Recent advances in vaccines

Digestive system

1. Normal tract
 - Physiology, anatomy, development
2. Clinical features of disorders
3. Disorders of esophagus
4. Disorders of stomach
5. Disorders of intestines except food allergy
6. Disorders of pancreas
7. Disorders of Liver and biliary system
 - Acute hepatitis, chronic hepatitis, cirrhosis,
 - Metabolic liver diseases, cholestatic liver disease,
 - Neonatal obstructive cholangiopathy, complications of liver disease, portal hypertension, encephalopathy, coagulopathy
8. Disorders of peritoneum
9. GI function tests
10. Approach to malabsorption

1. Food allergy

Knowledge Must Know

Respiratory system

1. Development and function
2. Disorders of upper respiratory tract
3. Disorders of lower respiratory tract
4. Pleural disorders
5. Chronic respiratory disease
 - Interstitial fibrosis, ILD, empyema,
 - Lung abscess, bronchiectasis
6. Recurrent respiratory disease
7. Ventilation
8. Pulmonary function tests
9. Cystic fibrosis
10. Obstructive sleep apnea
11. Pulmonary hemosiderosis
12. Neuromuscular skeletal disorders
13. Bronchial asthma

Cardiovascular System

1. Investigations —Lab, ECG, CXR, ECHO, Cath
2. Physiology and pathophysiology of transitional circulation embryology
3. Congenital heart disease
 - Epidemiology
 - Approach
 - cyanotic
 - acyanotic
4. Cardiac arrhythmia
5. Acquired heart disease
 - Infective endocarditis
 - Rheumatic heart disease
6. Diseases of the myocardium-myocarditis, cardiomyopathy
7. Cardiac therapeutics

Knowledge Desirable to know

1. Congenital disorders of nose
2. Hypoventilation
3. Kyphoscoliosis
4. Kyphoscoliosis
5. Central hyperventilation
6. Obesity
7. Cough syncope
1. Sick sinus
2. Tumors of heart
3. Heart lung, heart transplants
4. Aneurysms and fistulae

Knowledge Must Know

Blood

1. Development of hemomatopoietic system
2. Anemias
 - Inadequate production
 - Nutrition-iron, folate, B12
 - Bone marrow failure
 - Hemolytic
 - congenital and acquired
3. Constitutional pancytopenia
4. Polycythemia
5. Granulocyte transfusions
6. Pancytopenia
7. Blood and component transfusions
8. Thrombotic disorders
9. Hemorrhagic disorders-acquired and congenital
 - Physiology
 - Bleeding disorders
 - Coagulation disorders
10. Hyposplenism, trauma, splenectomy
11. Physiology and disorders of the spleen
12. Lymphatics

Neoplasms

1. Principles of diagnosis
2. Principles of treatment
3. Leukemia
4. Lymphomas
5. Neuroblastomas
6. Liver neoplasm
7. Kidney tumors
8. Bone neoplasms
9. Retinoblastoma

Knowledge Desirable to know

1. Elliptocytosis
2. Stomatocytosis
3. Other membrane defects
4. Lymphatic vessel disorders
1. Epidemiology
2. Molecular pathogenesis
3. Soft tissue sarcomas
4. Gonadal, germ cell tumours
5. GI neoplasm
6. Carcinomas
7. Skin cancer
8. Benign tumours

Knowledge Must Know

Knowledge Desirable to know

Nephrology

1. Structure and function of kidney
2. Hematuria and conditions
3. HUS
4. Evaluation
5. Proteinuria
6. Nephrotic syndrome
7. Acute glomerulonephritis
8. Tubular disorders
 - Function
 - RTA
 - DI
9. Renal failure
10. RPGN
11. Renal replacement therapy
12. Bartter syndrome
13. Investigations
14. Toxic nephropathy

1. Membranous GN
2. Lupus nephritis
3. Membr prolifer GN
4. Chronic infln GN
5. Goodpasture
6. Interstitial nephritis
7. Cortical necrosis

Urological disorders

1. UTI
2. Congenital anomalies, dysgenesis kidney
3. Vesicoureteral reflux
4. Bladder anomalies
5. Obstructions
6. Penis, urethra anomalies
7. Voiding dysfunction
8. Scrotal anomalies
9. Genitourinary trauma
10. Urinary lithiasis
11. Investigations — imaging, renal function tests
12. Neurogenic bladder

Gynecological problems

1. Menstrual problems
2. Vulvovaginitis
3. Developmental anomalies
4. A child with special gynea needs

1. Neoplasms
2. Breast disorders
3. Hirsutism, polycystic ovaries
4. Gyne imaging
5. Athletic problems

Knowledge Must Know

Endocrine

1. Hypothalamus and pituitary
 - Hyperpituitarism
 - Hypopituitarism, Growth hormone
 - DI
 - ADH
 - Physiology of puberty
 - Disorders of puberty
 - Precocious puberty
 - Delayed puberty
2. Thyroid
 - Thyroid studies
 - Hypothyroidism
 - Thyroiditis
 - Goitre
 - Hyperthyroidism
3. Parathyroid and disorders
4. Diabetes mellitus
5. Adrenal disorders
 - CAH
 - Cushing
 - Addisons
 - Excess mineralocorticoids
 - Feminizing adrenal tumours
 - Pheochromocytoma

CNS

1. Examination, localization of lesions
2. Congenital anomalies
3. Seizures
4. Headaches
5. Neurocutaneous disorders
6. Coma
7. Brain death
8. Head Injury
9. Neurodegenerative disorders- approach, grey/white
10. Acute Stroke
11. Brain abscess
12. Tumors

Knowledge Desirable to know

1. Carcinoma of thyroid
2. Tumours of testis/ovary
3. Multiple endocrine disorders

Knowledge Must Know

Knowledge Desirable to know

CNS (Contd...)

13. Spinal cord disorders
14. Investigations
15. Antiepileptic drugs
16. SSPE
17. Rabies vaccine encephalomyelitis
18. Acute demyelinating encephalomyelitis
19. Approach, investigations of UMN, LMN, extrapyramidal, cerebellar lesions
20. Cerebral palsy
21. Neuroinfections
22. Encephalopathies

Neuromuscular

- | | |
|--------------------------------------------------------------|------------------------------------|
| 1. Evaluation, investigations | 1. Development disorders of muscle |
| 2. Muscular dystrophies, congenital myopathy, myositis | 2. Endocrine |
| 3. Neuromuscular transmission and motor neuron abnormalities | 3. Metabolic |
| 4. GB syndrome | 4. Motor sensory neuropathy |
| 5. Bell's palsy | 5. Autonomic |
| 6. Floppy infant | |
| 7. Myasthenia gravis | |

Eye

- | | |
|----------------------------------------------------------------|------------------------------|
| 1. Examination of eye | 1. Refraction, accommodation |
| 2. Diseases of eye movement and alignment disorders | 2. Vision |
| 3. Diseases of conjunctiva – conjunctivitis | 3. Pupils and iris |
| 4. Diseases of lens – cataracts | 4. Lids |
| 5. Diseases of optic nerve - papillitis, neuritis, papilledema | 5. Uveal tract |
| 6. Diseases of cornea – clouding | 6. Retina and vitreous |
| 7. Vitamin A deficiency | 7. Glaucoma |
| 8. Lacrimal problems – Dacrocystitis | 8. Orbital abnormalities |
| 9. Retinopathy of prematurity | 9. Injuries to eye |
| 10. VER | |

Knowledge Must Know

Ear

1. Clinical manifestations
2. Hearing loss
3. External otitis
4. Otitis media
5. BAER

Skin

1. Morphology
2. Evaluation
3. Principles of therapy
4. Diseases of the neonate
5. Ectodermal dysplasias
6. Vascular disorders
7. Cutaneous nevi
8. Pigment Disorders
 - Hyperpigmentation
 - Hypopigmentation
9. Vesiculobullous diseases
10. Eczema
11. Cutaneous infections - bacterial, viral, fungal
12. Arthropod bites, infestations
13. Acne
14. Nutritional diseases
15. Drug reactions

Bone/Joint

1. Evaluation
2. Diseases of foot, toes
3. Torsional, angular deformities
4. Leg length discrepancy
5. Diseases of knee
6. Diseases of hip
7. Diseases of spine
8. Diseases of neck
9. Upper limb
10. Arthrogyrosis
11. Common fractures

Knowledge Desirable to know

1. Congenital malformations
2. Inner ear diseases
3. Trauma
4. Tumors
5. Cutaneous defects
6. Hypersensitivity
7. Epidermis dis
8. Keratinization dis
9. Dermis dis
6. Subcut diseases
7. Sweat glands
8. Hair
9. Nails
10. Mucous membranes
11. Tumors
1. Sports medicine
2. Pseudoachondroplasia
3. Diagnosis, assessment of genetic skeletal disorders
4. Dysplasias -thantophoric, diastrophic, camptomelic
5. Ellis van creveld
6. Osteochondrodysplasia
7. Inherited osteoporosis
8. Hypophosphatasia
9. Primary chondrodystrophy
10. Idiopathic hypercalcemia
11. Hyperphosphatasia

Knowledge Must Know

Knowledge Desirable to know

Bone/Joint (Contd..)

12. Arthritis - approach, investigations, management
13. Congenital dislocation of hip
14. Osteomyelitis
15. Septic arthritis
16. Rickets - nutritional and non nutritional

Genetic skeleton

1. Lethal and nonlethal bone dysplasias
2. Achondroplasia
3. Osteopetrosis
4. Marfans

Metabolic Bone disease

1. Bone and vitamin D
2. Familial hypophosphatemia
3. Rickets - nutritional and non nutritional

Unclassified disease

- | | |
|--------------------|-----------------------------|
| 1. SIDS | 1. Sarcoidosis |
| 2. Histiocytosis | 2. Progeria |
| 3. Cystic fibrosis | 3. Chronic fatigue syndrome |

Environmental

- | | |
|---------------------------------------------------------------|---------------------------|
| 1. Lead poisoning | 1. Radiation |
| 2. Envenomation | 2. Chemical pollutants |
| 3. Mammalian bites | 3. Mercury |
| 4. Common poisonings-OP, kerosene, phenobarbitone, iron, etc. | 4. Nonbacterial poisoning |

- **Pedagogy**

- Principles of learning, objectives, teaching learning methods, evaluation.

- **Health Statistics, National Programs**

- **Organization Of Office Practice**
 - Equipment, documentation, records, space and functioning.
- **Recent Advances In Pediatrics**
 - Duration 5 years

Allied Subjects

- **Anatomy**
 - Applied embryology, development of major organ systems
- **Physiology**
 - Applied Physiology with regard to major organ systems
- **Biochemistry**
 - Biochemical basis or diseases in children — nutritional and metabolic
- **Pathology**
 - Pathophysiology of diseases in children, pathogenesis, basic histopathology
- **Microbiology**
 - Clinical microbiology applied to investigations for diseases in childhood, serology,
 - staining, cultures
- **Pharmacology**
 - Clinical pharmacology, therapeutics of childhood diseases, drug interactions, rational drug therapy, adverse drug reactions,
- **Community Medicine**
 - Health care delivery systems — structure and function, health statistics, national programs
- **Pediatric Surgery**
 - Recognition and referral of surgical conditions in pediatrics
- **Radiology**
 - Clinical Indications and interpretations of X-ray, ultrasound, CT, MRI
- **Legal and Ethical Medicine**
 - Rights and protection of children, Consumer Protection Act, basic principles of ethics>

I. Postgraduate skills

Please note code:

PI: Perform Independently

PA: Perform with assistance

O: Observe

Number at end of item indicates minimum number of supervised and documented skills.

Psychomotor skills

Procedural

Procedures: List of PI Skills

- Clinical history and physical examination
- Human lactation management (counseling and practical skills) 20
- Neonatal resuscitation 30
- Pediatric resuscitation 30
- Teaching encounters 05
- Intravenous injections 50
- Intravenous cannulation 50
- Lumbar puncture 50
- Test dose 10
- Infusions 10
- Blood transfusions 10
- Neonatal exchange transfusions 10
- ABG 10
- Central line, CVP 10
- Intraosseous 10
- Bone marrow aspiration, trephine biopsy 10
- Pleural tap 10
- Paracentesis — diagnostic and therapeutic 10
- Mantoux test 10
- DPT, OPV, measles vaccination 10
- Sampling for fluid cultures 10
- Liver biopsy 10
- Neonatal, pediatric partial exchange 05

Respiratory management (All PI)

- Nebulization 50
- Inhaler therapy 10
- Oxygen delivery 50

Critically Ill child (All PI)

- Monitoring a sick child 50
- Pulse oximetry 10
- Infant feeding tube/ Ryles tube, stomach wash 10
- Urinary catheterization 10
- Restraining a child for a procedure 10
- ORS and ORT 10
- Prognostication 10

<i>Laboratory- Diagnostic (All PI)</i>	10
• Urine protein, sugar, microscopy	
• Peripheral blood smear	10
• Malarial smear	10
• Ziehl Nielson smear — sputum, gastric aspirate	10
• Grams smear — CSF, pus	10
• Stool pH, reducing substances, microscopy	10
• KOH smear	02
 <i>Neonatal tests (All PI)</i>	
• Apt test	05
• Shake test	05
 <i>Clinical Assessment skills (All PI)</i>	
• Clinical History and Physical examination	-
• Anthropometry	50
• Dietary recall, calorie and protein estimation	50
• Nutritional advice	50
• Gestational assessment	10
• Neurological examination of newborn	10
• Primitive reflexes	10
• Fundoscopy	10
• Otoscopy	10
• Examination of external genitalia - male and female	10
• Tanner's SMR scales	05
• DDST or Baroda scales, TDS	05
• Amiel Telson's angles	05
• Per rectal examination	02
 Interpretation (All PI)	
• Clinical History and Physical examination	
• Blood, Urine, CSF and Fluid investigations – hematology&	50
• Chest X-ray	50
• ECG	20
• ABG interpretation	20
• Abdominal X-ray	20

- Bone and joint X-ray 20
- CT scan brain 20
- Barium studies 10
- IVP, VUR studies 10
- Ultrasound abdomen 10
- Neurosonogram 10

Communication skills (All PI)

- Clinical history and physical examination
- Communicating health, disease
- Communicating about a seriously ill or mentally abnormal child
- Communicating death
- Informed consent
- Empathy with a family
- Referral letters, replies
- Discharge summaries
- Death certificates
- Pre-counseling for HIV
- Post counseling for HIV
- Basic Pedagogy sessions — teaching students, adults
- Lectures, bedside clinics, discussions
- Medline search, internet, Computer usage

List of Observations:

- Genetic counseling 02
- Classification of diseases 02

List of PA skills:

- Sedation 10
- Analgesia 10
- Brain death 10
- Intercostal tube placement with underwater seal 05

List of PA skills:

- Peritoneal dialysis 02
- Subdural, Ventricular tap 02

Teaching Learning Activities

Methods suggested for Pediatric Postgraduate Training Programs:

- **Didactic Lectures:** (Faculty lectures)
 - *Objective:* To introduce a broad-based concept in an important area of learning to orient the postgraduate student.
 - *Examples:* Potential introductory topics to pediatrics like fluid and electrolytes, early recognition of shock and respiratory failure, DTTU management, recent advances, basic science/ concepts and ARI program.
 - *Frequency:* Three times a week during the introductory phase of the first one-two months of the new postgraduates joining the course. Following this period of orientation, it does not serve a purpose of self-directed learning and is best avoided as a regular activity except as an exceptional guest lecture.
- **Seminars:**
 - *Objective:* To enable a student to study in depth an important area of learning important to the training of the student.
 - *Examples:* Examples of potential seminar topics would be protein energy malnutrition, pediatric tuberculosis, pediatric HIV, bronchial asthma, chronic liver disease and its complications.
 - *Frequency:* Three times a month. Topics to rotate once every 2-3 years (DCh, MD). Topic to be shared among 2-3 students and to be equally distributed depending upon the number of postgraduate students in the department. Ideally, MD students should be given more conceptual topics needing a higher degree of understanding and in-depth study. Seniors should have also a more difficult part of the topic when presented as a two-person seminar. Juniors can present after a preliminary month of observation of seminar and ideally could be in combination with senior postgraduates.
- **Journal Club:**
 - *Objective:* To appreciate and enable the critical analysis of scientific literature published in peer reviewed journals, studies, reviews.
 - *Examples:* Articles like the study on prophylactic Zidovudine to HIV positive pregnant women in prevention of vertical transmission to the fetus, Digoxin versus Captopril in VSD in CCF, etc.
 - *Frequency:* Ideally, once in 1-2 months. MDs get the first opportunity and juniors begin after their first year in the course.

- **Undergraduate Teaching Clinics**
 - *Objective:* To teach effectively undergraduate and colleagues utilizing simple educational methods.
 - *Methodology:* During the third year of MD course, postgraduate students should be given opportunities to teach undergraduates.
 - *Examples:* Bedside Clinic, Didactic lecture, skill workshop (e.g. NALS, PALS)
 - *Frequency:* During undergraduate postings in the department each postgraduate should have a minimum of 2 opportunities per year after the first year of the postgraduate course is completed.

- **Bedside Clinics**
 - *Objective:* To learn bedside techniques - interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment and communication.
 - *Examples:* Child with hemiplegia, hepatosplenomegaly, anemia, jaundice, etc.
 - *Frequency:* Once in a week is the minimum as it forms the basis of good - clinical training activities.

- **Mortality Review Meeting**
 - *Objective:* To analyze, discuss and learn from mortalities.
 - *Methodology:* Once a month, all mortalities in the concerned department are presented to the department, both faculty and residents and pre-chosen cases are presented in detail. These cases are discussed further and after analysis shortcomings in diagnosis and treatment are identified to prevent future similar mortalities.
 - *Examples:* snake bite mortalities due to inadequate antivenom, failure to recognize early compensated circulatory failure or inadequate treatment of hyperkalemia.
 - *Frequency :* Once in a month preferably in the first week to allow the previous months mortality to be presented for discussion.

- **Grand Rounds**
 - *Objective:* To improve on bedside techniques – interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment, communication.

- *Examples:* The child with pyrexia of unknown origin, undiagnosed hepatosplenomegaly, multi-systemic disease.
 - *Frequency:* Once in a week presuming the Head of Unit of Department does not daily interfere with the day to day management of the ward except in special circumstances.
- **Inter-departmental meetings**
 - *Objective:* To experience inter-departmental cooperation and develop a healthy professional respect for each other's opinions in addition to the subject learning experience.
 - *Methodology:* Case discussions or students present investigations to members of both faculty. The discussion is a learning experience and improves communications between departments.
 - *Examples:* Chest X-rays of a complicated bronchopneumonia progressing to an empyema, CT scans of intra-cranial pathology, Tracheo-esophageal fistulae and supportive care.
 - *Frequency:* Once or twice in a month and rotated between departments — radiology, pediatric surgery, cardiology, nephrology, neurology, clinical hematology, etc.
- **Clinical Pathological Conference CPC**
 - *Objective:* To analyze clinical material to reach a differential diagnosis and correlate with the pathological biopsy findings.
 - *Frequency:* Once in two months. First choice is a senior MD student. All are encouraged to participate.
- **Records Round**
 - *Objective:* To appreciate the importance of documentation of facts and record keeping.
 - *Methodology:* Faculty in the presence of the team scrutinizes random case records. History sheets, doctor order sheets, progress sheets and discharge summaries are discussed.
 - *Frequency:* Once a week with the entire team present at the session.

Dissertation

- Every candidate pursuing degree course is required to carry out work on a selected research project under the guidance of a recognised post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.

- The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of at hypothesis, search and review of literature, getting acquainted with recent; advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.
- Every candidate shall submit to the Registrar (Academic), JSS University, in the prescribed proforma, a synopsis containing particulars of proposed dissertation work six months from the date of commencement of the course, on or before the dates notified by the University. The synopsis shall be sent through the propel channel.
- Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.
- The dissertation should be written under the following headings:
 - a. Introduction
 - b. Aims or Objectives of study
 - c. Review of Literature
 - d. Material and Methods
 - e. Results
 - f. Discussion
 - g. Conclusion
 - h. Summary
 - i. References (Vancouver style)
 - j. Tables
 - k. Annexures
- The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexures. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and Head of the Institution.
- Four copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), six months before final examination, on or before the dates notified by the University.
- The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.
- For some more details regarding Guide etc please see Chapter I and for books on research methodology, ethics, etc see Chapter IV.

Rotation Postings

1. Core

- a. Pediatrics – 18-23 months
- b. Neonatology - 6-8 months
- c. Intensive Care/Emergency- 2-3 months

2. Optional Specialities (subject to availability) – 6 months

- a. Oncology
- b. Neurology
- c. Pediatric surgery
- d. Nephrology
- e. Cardiology
- f. Clinical hematology
- g. Dermatology
- h. Pulmonology
- i. Gastroenterology
- j. Clinical Microbiology
- k. Community/Rural

Monitoring Learning Progress

- It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching & learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.
- The learning out comes to be assessed should included: (1) Personal Attitudes, (2) Acquisition of Knowledge, (3) Clinical and operative skills, (4) Teaching skills and (5) Dissertation.

1. **Personal Attitudes.** The essential items are:

- Caring attitudes
- Initiative
- Organisational ability
- Potential to cope with stressful situations and undertake responsibility
- Trust worthiness and reliability
- To understand and communicate intelligibly with patients and others

- To behave in a manner which establishes professional relationships with patients and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge, the methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. Acquisition of Knowledge: The methods used comprise of 'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

- *Journal Review Meeting (Journal Club):* The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, Chapter IV)
- *Seminars / Symposia:* The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio- visual aids are to be assessed using a checklist (see Model checklist-II, chapter IV)
- *Clinico-pathological conferences:* This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

3. Clinical skills

- *Day to day work:* Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model checklist III, chapter IV).
- *Clinical meetings:* Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV, chapter IV),
- *Clinical and Procedural skills:* The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No.3, chapter IV)

4. Teaching skills: Candidates should be encouraged to teach VCBC undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See Model checklist V, chapter IV)

5. Dissertation in the department: Periodic presentations are to be made in the department. Initially the topic selected is to be presented before submission to the University for registration, again before finalisation for critical evaluation and another before final submission of the completed work (See Model checklist VI & VII, chapter IV).

6. Periodic tests: The departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, using practical / clinical and viva voce.

7. Work diary / Log Book: Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

8. Records: Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

9. Log book: The log book is a record of the important activities of the candidates during his training; internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.

Format for the log book for the different activities is given in Tables 1,2 and 3 of Chapter IV. Copies may be made and used by the institutions.

Procedure for defaulters: Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

Scheme of Examination

a) Theory

There shall be four question papers, each of three hours duration. Each paper shall consist of two long essay questions each question carrying 20 marks and 6 short essay questions each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances may be asked in any or all the papers. Details of distribution of topics for each paper will be as follows.

Paper I : Fetal and newborn

Paper II : General Pediatrics I

General Paediatrics I includes: Respiratory, CNS, hematology, nutrition, growth and development, oncology, endocrine, metabolic, allergy/immunology, psychiatry.

Paper III : General Paediatrics II

General Paediatrics II Includes: infection, gastroenterology, hepatology immunization, renal, CVS, surgical, adolescent, collagen vascular, miscellaneous.

Paper IV : Ambulatory (OPD) Pediatrics, community and social pediatrics, emergency and critical care pediatrics.

Basic Sciences and recent advances as applied to clinical paediatric disorders should be incorporated into relevant and appropriate question papers covering the respective areas.

Note: The distribution of chapters / topics shown against the papers are suggestive only.

b) Clinical Examination	200 Marks	
	No. of Cases	Marks
Long case	1	80
Short case	1	45
OPD case	1	25
Emergency case	1	25
Newborn	1	25
Total	5	200

c) Viva-Voce:

100 marks

1) Viva-Voce Examination: (80 Marks)

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression and interpretation of data. It includes all components of course contents. In addition candidates may also be given case reports, charts, gross specimens, pathology slides, instruments, X- rays, ultrasound, CT scan images, for interpretation, It includes discussion on dissertation also.

2) Pedagogy Exercise: (20 Marks)

A topic be given to each candidate in the beginning of clinical examination. He/she is asked to make a presentation on the topic for 8-10 minutes.

d) Maximum marks for MD degree course

Theory	Practical	Viva	Grand Total
400	200	100	700

Recommended Books and Journals Texts:

Essential

1. Nelson's Textbook of Pediatrics, Harcourt Asia Saunders
2. Cloherty's Manual of Neonatal Care
3. Meharban Singh's Care of the Newborn
4. Harriat Lane
5. Manual of Pediatric Therapeutics, Little Brown's Children's Hospital, Boston.
6. O.P. Ghai's Textbook of Pediatrics

Reference

1. Rudolf's Pediatrics, Appelton and Lange
2. Forfar and Arneil's Textbook of Pediatrics, ELBS
3. Frank Oski's Principles and Practice of Pediatrics
4. Avery's Disease of the Newborn
5. Roberton's Textbook of Neonatology
6. Illingworth's The normal child
7. Guha's Textbook of Neonatology
8. IAP Textbook of Pediatrics
9. Nadas' Pediatric Cardiology
10. Perloff's Approach to Congenital Heart Disease
11. Moss and Adam's Heart Disease in Infants, children and Adolescent
12. Miller's Blood Diseases of Infancy and Childhood
13. DeGruchy's Clinical Hematology in Medical Practice
14. Barret and Holiday's Pediatric Nephrology
15. Caffey's Pediatric X-Ray diagnosis
16. Alleyne's Protein Energy Malnutrition
17. Miller, Tuberculosis
18. Vimlesh Seth, Tuberculosis
19. Swanson's Pediatric Surgery
20. Cherry and Feigen's Pediatric Infectious Diseases
21. Fenichel's Pediatric Neurology
22. Kendig's Respiratory Diseases in Pediatrics
23. Alex Mowat's Liver Disease in Children
24. Roger's Pediatric Critical Care
25. H.P.S. Sachdev's Principles of Pediatric and Neonatology Emergencies
26. Smith's Recognition patterns of Human Malformations

Indexed, Journals

1. Indian Pediatrics
2. Indian Journal of Pediatrics
3. Pediatric Clinics of North America
4. New England Journal of Medicine
5. Lancet
6. British Medical Journal
7. Journal of Pediatrics
8. Archives Disease of Childhood and Adolescence
9. Pediatrics
10. Perinatal Clinics of North America

Reference Series

1. Suraj Gupta's Recent Advances in Pediatrics
2. David's Recent Advances in Pediatrics
3. Advances in Pediatrics
4. Year Book of Pediatrics

Annexure

Record to be maintained by Postgraduate students for internal evaluation

Name Academics Service Skills Responsibility

Name	Teaching Programs	Discussion	Patient work	Patient care	Procedure	Communication	Discipline	Punctualtv	Anecdotal events +/-

Pediatric Postgraduate Training 'Log book'

Contents:

1. Personal Data:

Name
 Institution
 Dates of Postgraduation studies
 Joining
 Completion
 Degree
 University
 Dissertation Title
 Name and Designation of Guide
 Signature of candidate
 Signature of Supervisor
 Signature of Head of Department

2. Professional Education: (eg. MBBS, DCh)

Degree	Institution	University	Dates of Training

3. Professional Experiences: (eg. SHO Pediatrics, CMO, Tutor)

Professional Post	Institution	Dates of Work period

4. **Clinical Postings:** (eg. General Pediatrics, PICU, NICU, Oncology, Neurology)

Speciality	Duration	Dates of Posting

5. **Case Presentations:** (eg. Clinics, tutorials)

Date	Name/age/sex	Problem/Diagnosis	Grade	Supervisor

6. **Seminars:** (eg. Seminar on TB)

Date	Topic of Presentation	Grade	Supervisor

7. **Mortality meetings:** (eg. Mortality case discussion)

Date	Name/age/sex	Problem/Diagnosis	Supervisor

8. **Multi-disciplinary meetings:** (eg. Urinary lithiasis with Urology and Nephrology)

Date	Topic	Departments involved

9. **Community Activity:** (eg. Pulse polio, Education programs, Rural visits, slum visits)

Date	Description of Activity	Supervisor

10. **Paper Presentation:** (Local, State, National, International Forum- eg. IAP local meetings, NNF meetings)

Date	Title of Paper presented	Supervisor

11. **Undergraduate Classes taken by MD candidate:** (eg. Didactic lecture or clinic)

Date	Topic	Supervisor

12. **Academic Meetings, CMEs and Conferences attended :** (Extra mural, Local, State, National, International Forum-eg. IAP local meetins, NNF meetings)

Date	Title	Organization

13. **Training Courses:** (eg. BFHI loctation course, PALS, NALS, Research methodology)

Date	Title	Supervisor

DIPLOMA IN CHILD HEALTH (DCH)

Goals

The goals of postgraduate training in Pediatrics would be to train a basic medical graduate (MBBS):

- To practice as a Child Health specialist equipped with appropriate knowledge and skills necessary to care for the normal and sick child.
- To practice Child Health in the community (urban or rural) and to perform professionally at all levels of the existing health care system.
- To practice with empathy and the highest ethical standards of the profession.
- To continue to strive for excellence by continuing medical education throughout his or her professional career.
- To teach by sharing knowledge and skills with colleagues.
- To research and find solutions to challenges in health care.

Objectives

The objectives to be fulfilled at the completion of the course are as follows:
At the end of the program, the student should be able to:

- Knowledge:
 - Describe, identify and monitor normal patterns of growth and development of children.
 - Describe aetio-pathogenesis, principles of clinical diagnosis, investigations and treatment of diseases of childhood.
 - Demonstrate an understanding of basic (pre and para-clinical) sciences and its application to the normal and abnormal processes.
 - Analyze clinical and investigation data approach and manage a health-related problem.
 - Identify and understand socio-economic-environmental-cultural factors in health care.
 - Recognize problems outside his or her abilities and appropriately refer.
 - Update one's knowledge and skills by self directed learning and by participating in continued medical education programs utilizing media – spoken, written, print and electronic.
 - Teach and share knowledge and skills with colleagues.
 - Audit and analyze work, assist in research and publish scientific articles in peer reviewed journals.

- Skills:
 - Elicit an appropriate clinical history.
 - Demonstrate appropriate clinical physical examination skills on children.
 - Plan, decide upon and interpret appropriate cost effective investigations.
 - Perform essential procedures both diagnostic and therapeutic.
 - Manage, resuscitate and stabilize children in pediatric or neonatal emergencies.

- Communication and attitudes:
 - Communicate appropriately with guardians and children, assisting in their health care decision making.
 - Practice child health care at the highest ethical level, protecting the child at all costs.
 - Respect patient's (and their guardian's) rights and professional relationships (doctor-doctor, doctor-nurse, doctor-patient, doctor-society).
 - Apply the highest level of ethics in research, publication, references and practice of pediatrics.

Course Contents

Knowledge Must Know	Knowledge Desirable to know
The Field of Pediatrics	
1. Evaluating medical literature critical appreciation of journal articles	1. History of pediatrics
2. Overview of child health	2. Traditions and cultural issues pertaining to child care
3. The normal child	
4. Preventive and social pediatrics	
5. Epidemiology, statistics and research methodology including dissertation	
6. Ethical issues in pediatrics	
Growth and Development	
1. Biopsychological models of development	1. IQ assessment
2. Fetal growth and development	
3. The newborn G/D	

Knowledge Must Know

Knowledge Desirable to know

Growth and Development (Contd..)

4. Infant, preschool, early school, adolescence G/D
5. Assessment of growth
6. Development assessment
7. Standards / normograms (including Indian)
8. Approach to short stature
9. Approach to Obesity
10. Approach to undernutrition
11. Approach / management of failure to thrive
12. Approach / management of developmental delay, regression of milestones

Psychological Disorders

- | | |
|------------------------------------------------------------------------|-----------------------------------------------------|
| 1. Assessment and interviewing | |
| 2. Vegetative disorders- Rumination, Pica, Enuresis, Encopresis, Sleep | 1. Autism |
| 3. Habit disorders | 2. Suicide |
| 4. Anxiety disorders | 3. Neurodevelopment dysfunction in school age child |
| | 4. Learning disorders |
| 5. ADHD | |
| 6. Psychosomatic illness | |

Social Issues

- | | |
|---------------------------------------------------|-------------|
| 1. Street child | 1. Adoption |
| 2. Childcare | |
| 3. Separation, death | |
| 4. Abuse and neglect | |
| 5. Child labor | |
| 6. Media (TV, movies) and its effect on the child | |

Children with Special Needs

- | | |
|----------------------------------------------------------|------------------------|
| 1. Failure to thrive - problems, approach and management | 1. Children in poverty |
| 2. Developmental disabilities, chronic illness | |

Knowledge Must Know

Acutely ill child

(Approach and management)

1. Evaluation in emergency
2. Injury control
3. Emergency medical services
4. Pediatric critical care
Respiratory failure, concepts of ventilation circulatory failure and shock acute neurological dysfunction
Resuscitation - basic and advanced, NALS/PALS post resuscitation stabilization cold/heat injury.
5. Transportation of sick child/neonate

Emergencies/ Critical Care

Pediatrics (Approach and management)

1. Fluid abnormalities.
2. Electrolyte abnormalities lactic acidosis.
3. Thermoregulation problems.
4. Acute renal failure.
5. Hypertensive crisis.
6. Congestive cardiac failure.
7. Cardiogenic shock.
8. Pericardial tamponade.
9. Cyanotic spells.
10. Vomiting and diarrhea.
11. GI bleeds - hematemesis, melena, hematochezia.
12. Adrenal crisis.
13. Metabolic problems - hyperammonemia, lactic acidosis, acid base abnormalities, hypoglycemia.
14. Septicemic shock, viral infections and shock.
15. Pneumothorax, empyema, pleural effusion, ascites.
16. Severe anemia, bleeding child, neutropenia.
17. Pain management, drug therapy.

Knowledge Desirable to know

1. Basics of pre Anesthesia checkup
2. Level II equipment for intensive care
1. Unsuitable and stable arrhythmias
2. Metabolic - hyperammonemia
3. Pre-anesthetic check up PAC

Knowledge Must Know
Emergencies/ Critical Care
Pediatrics (Contd..)

18. ARDS.
19. Respiratory failure.
20. Burns/ electrocution.
21. Animal bites.
22. Sickle cell crisis, severe complicated malaria.
23. Acute severe asthma, bronchiolitis.
24. Status epilepticus.
25. Febrile seizure.
26. Coma, increased intra-cranial pressure.
27. Cardiopulmonary resuscitation.
28. Shock.
29. Upper airway obstruction.
30. Near drowning.
31. Poisoning.
32. Snake bite.
33. Scorpion sting.
34. Physical abuse.
35. Sexual abuse.

Human Genetics

1. Inheritance patterns
2. Chromosomal/genetic clinical abnormalities
3. Genetic counseling
4. Dysmorphism

Metabolic Disorders

1. Approach to IEM defects.
2. Hypoglycemia.

Knowledge Desirable to know

1. Molecular basis of disorders
2. Molecular diagnosis
3. Human genome project
4. Gene therapy

1. Purine and pyrimidine metabolism.
2. Amino acid metabolic defects - common
3. Lipid metabolism- common
4. CHO metabolism - common
5. Mucopolidosis, Mucopolysaccharidosis

Knowledge Must Know

Fetus and Newborn

(Approach and management)

1. Mortality and morbidity
2. Newborn — history, examination, routine delivery care, nursery care, bonding
3. High risk pregnancies
4. Dysmorphology
5. Fetus
 - Fetal distress
 - Maternal diseases
 - Maternal medications
6. High risk infant
 - Multiple pregnancies
 - Prematurity
 - Postdated
 - IUGR/LBW
 - LFD
7. Congenital anomalies/ malformations
8. Birth injuries
9. Hypoxia - ischemia, asphyxia
10. Normal Newborn
11. Common problems in a normal newborn
12. Delivery room emergencies
13. Respiratory disorders
14. Oxygen therapy, toxicity
15. Basics of ventilation
16. GI disturbances including NEC
17. Hyperbilirubinemia
18. Cardiac problems
19. Blood disorders
 - Polycythemia
 - Anemia
 - Hemorrhagic disease of newborn
 - Hemolytic disease of newborn
 - Thrombocytopenia
20. Metabolic disorders.

Knowledge Desirable to know

1. Organization and levels of new born care
2. Antenatal diagnosis/treatment
3. PPHN
4. Genitourinary disturbances

Knowledge Must Know

Knowledge Desirable to know

Fetus and Newborn (Contd..)

21. Endocrine disorders- IDM, CAH- recognition and referral
22. Fluid and electrolytes in newborn care
23. Nutrition and feeding the newborn - term, preterm, LBW, IUGR
24. Neonatal transport
25. Surgical problems - recognition and referral
26. Thermoregulation
27. Neonatal follow-up

Neonatal Infections

(Approach and management)

1. Epidemiology
2. Intrauterine infections
3. Viral infections
4. Neonatal sepsis/meningitis
5. Pneumonia
6. UTI
7. Hepatitis
8. Nosocomial
9. Universal precautions
10. Prevention of infections
11. Therapy- antimicrobials, adjuvants

Adolescent health

- | | |
|--------------------------------------------------|------------------|
| 1. Epidemiology | 1. Pregnancy |
| 2. Sexual development and SMR stages | 2. Contraception |
| 3. Deliveries of health care | 3. STD |
| 4. Menstrual problems - recognition and referral | |

Immunological system

- | | |
|---------------------------------|--------------------------------|
| 1. Basics of immunology | 1. Bone marrow transplantation |
| 2. Approach to immunodeficiency | |
| 3. HIV | |

Knowledge Must Know

Knowledge Desirable to know

Allergic disorders

1. Allergy and immunological basis
2. Diagnosis
3. Therapy — principles
4. Allergic rhinitis
5. Asthma
6. Atopic dermatitis
7. Urticaria, angioedema
8. Anaphylaxis
9. Serum sickness
10. Adverse drug reactions

1. Insect allergy
2. Ocular allergy
3. Adverse food reaction

Rheumatology (Approach and management)

1. Autoimmunity
2. Laboratory evaluation
3. JRA
4. SLE
5. Erythema nodosum

1. Vasculitis
2. Dermatomyositis

Infectious diseases

(Approach and management)

1. Fever
2. Clinical use of micro Lab
3. Fever without a focus
4. Sepsis and shock
5. CNS Infections
6. Pneumonia
7. Gastroenteritis
8. Osteomyelitis, Septic arthritis
9. Compromised host infections
10. Bacterial infections
11. Anaerobic infections
12. Viral infections
13. Mycotic infections
 - Candidiasis
 - Aspergillosis
14. Parasitic infections
 - Helminthiasis
15. Protozoal
 - Malaria
 - Kalazar
 - Leishmania, giardia
 - Amoeba
16. Antiparasitic drugs

Knowledge Must Know

Knowledge Desirable to know

Infectious diseases (Contd...)

17. Antimicrobials
18. Antiviral drugs, interferon
19. Preventive measures
 - Health advice for travelling
 - Infection control
20. Immunization
 - Principles
 - Schedules
 - Controversies
 - Standard and optional vaccines
 - Recent advances in vaccines

Digestive system

1. Normal tract
 - Physiology, anatomy, development
2. Clinical features of disorders
3. Esophagitis, GER, achalasia
4. Ulcer, acid peptic disease, GI bleeds
5. Malabsorption, obstruction
6. Pancreatitis
7. Disorders of Liver and biliary system
 - Acute hepatitis, chronic hepatitis, cirrhosis
 - Metabolic liver diseases, cholestatic liver disease
 - Neonatal obstructive cholangiopathy, complications of liver disease, portal hypertension, encephalopathy, coagulopathy
8. Peritonitis
9. GI function tests
10. Approach to malabsorption

Knowledge Must Know

Knowledge Desirable to know

Respiratory system

(Approach and Management)

1. Development and physiological function
2. Disorders of upper respiratory tract
3. Disorders of lower respiratory tract
4. Pleural disorders
5. Chronic respiratory disease
 - Interstitial fibrosis, ILD, empyema,
 - Lung abscess, bronchiectasis
6. Recurrent respiratory disease
7. Basics / indications of ventilation
8. Bronchial asthma

1. Pulmonary function tests
2. Cystic fibrosis

Cardiovascular System

(Approach and Management)

1. Investigations —Lab, ECG, CXR
2. Physiology and pathophysiology of transitional circulation
3. Congenital heart disease
 - Epidemiology
 - Approach
 - cyanotic
 - acyanotic
4. Acquired heart disease
 - Infective endocarditis
 - Rheumatic heart disease
5. Diseases of the myocardium-myocarditis, cardiomyopathy
6. Cardiac therapeutics

1. ECHO
2. Cardiac arrhythmia

Knowledge Must Know

Blood (Approach and Management)

1. Anaemias
 - Inadequate production
 - Nutrition-iron, folate, B12
 - Bone marrow failure
 - Hemolytic
 - congenital and acquired
2. Constitutional pancytopenia
3. Pancytopenia
4. Blood and component transfusions
5. Hemorrhagic disorders-acquired and congenital
 - Physiology
 - Bleeding disorders
 - Coagulation disorders
6. Hyposplenism, trauma, splenectomy
7. Physiology and disorders of the spleen

Neoplasms

(Approach and Management)

1. Principles of diagnosis
2. Principles of treatment
3. Leukemia
4. Lymphomas

Nephrology

(Approach and Management)

1. Structure and function of kidney
2. Hematuria and conditions
3. HUS
4. Evaluation
5. Proteinuria
6. Nephrotic syndrome
7. Acute glomerulonephritis
8. Renal failure
9. Investigations

Knowledge Desirable to know

1. Development of hemomatopoietic system
2. Granulocyte transfusions
1. Neuroblastomas
2. Liver neoplasm
3. Kidney tumors
4. Retinoblastoma
1. Tubular disorders
2. RPGN
3. Renal replacment therapy

Knowledge Must Know

Urological disorders

(Approach and Management)

1. UTI
2. Vesicoureteral reflux
3. Obstructions
4. Investigations — imaging, renal function tests

Gynecological problems

(Approach and Management)

1. Menstruation - normal
2. Vulvovaginitis

Endocrine

(Approach and Management)

1. Physiology of puberty
2. Thyroid
 - Thyroid studies
 - Hypothyroidism
 - Thyroiditis
 - Goitre
3. Diabetes mellitus
4. Adrenal disorders
 - CAH
 - Cushing
 - Addisons
5. Approach to short stature

CNS (Approach and Management)

1. Examination, localization of lesions
2. Congenital anomalies
3. Seizures
4. Headaches

Knowledge Desirable to know

1. Penis, urethra anomalies
2. Urinary lithiasis
3. Scrotal anomalies

1. Menstrual problems
2. Breast disorders
3. Developmental anomalies
4. A child with special gynea needs

1. Hypothalamus and pituitary
 - Hyperpituitarism
 - Hypopituitarism
 - Growth hormone
 - DI
 - ADH
2. Disorders of puberty
 - Precocious puberty
3. Parathyroid disorders
4. Adrenal
 - Excess mineralocorticoids
 - Feminizing adrenal tumours
 - pheochromocytoma
5. Hyper thyroids

1. Neurocutaneous disorders
2. Neurodegenerative disorders-approach, grey/white
3. Spinal cord disorders
4. SSPE

Knowledge Must Know

CNS (Approach and Management) (Contd..)

5. Coma
6. Brain death
7. Head Injury
8. Acute Stroke
9. Brain abscess
10. Tumors
11. Investigations
12. Antiepileptic drugs
13. Rabies vaccine encephalomyelitis
14. Acute demyelinating encephalomyelitis
15. Approach, investigations of UMN, LMN, extrapyramidal, cerebellar lesions
16. Cerebral palsy
17. Neuroinfections
18. Encephalopathies

Neuromuscular (Approach and Management)

1. Evaluation, investigations
2. Muscular dystrophy
3. GB syndrome
4. Bell's palsy
5. Floppy infant

Eye

1. Examination of eye
2. Squint
3. Diseases of conjunctiva – conjunctivitis
4. Diseases of lens – cataracts
5. Papilledema
6. Vitamin A deficiency
7. Lacrimal problems – Dacrocystitis

Knowledge Desirable to know

1. Congenital myopathy, myositis
2. Neuromuscular transmission and motor neuron abnormalities
3. Myasthenia gravis
1. Refraction, accommodation
2. Vision
3. Injuries to eye
4. Diseases of eye movement and alignment disorders
5. Diseases of optic nerve - papillitis, neuritis
6. Diseases of cornea – clouding
7. Retinopathy of prematurity
8. Visual Evoked Response

Knowledge Must Know

Knowledge Desirable to know

Ear

1. Clinical manifestations
2. Hearing loss
3. External otitis
4. Otitis media

1. Congenital malformations
2. Inner ear diseases
3. Trauma
4. BAER

Skin

1. Eczema
2. Cutaneous infections - bacterial, viral, fungal
3. Arthropod bites, infestations
4. Acne
5. Nutritional diseases
6. Drug reactions
7. Atopic dermatitis

1. Leprosy

Bone/Joint

1. Evaluation
2. Arthritis – approach, investigations, management
3. Congenital dislocation of hip
4. Osteomyelitis
5. Septic arthritis
6. Rickets-nutritional and non nutritional

Genetic skeleton

1. Lethal and nonlethal bone dysplasias
2. Achondroplasia
3. Osteopetrosis
4. Marfans

Metabolic Bone disease

1. Bone and vitamin D
2. Rickets-nutritional and non nutritional

Unclassified disease

1. SIDS

1. Histiocytosis
2. Cystic fibrosis

Environmental

1. Lead poisoning
2. Envenomation
3. Mammalian bites
4. Common poisonings- OP, kerosene, phenobarbitone, iron, etc.

- **Health Statistics, National Programs**
- **Organization Of Office Practice**
 - Equipment, documentation, records, space and functioning.
- **Recent Advances In Pediatrics**
 - Duration 5 years

Allied Subjects

- **Anatomy**
 - Applied embryology, development of major organ systems
- **Physiology**
 - Applied Physiology with regard to major organ systems
- **Biochemistry**
 - Biochemical basis or diseases in children — nutritional and metabolic
- **Pathology**
 - Pathophysiology of diseases in children, pathogenesis, basic histo-pathology
- **Microbiology**
 - Clinical microbiology applied to investigations for diseases in childhood, serology,
 - staining, cultures
- **Pharmacology**
 - Clinical pharmacology, therapeutics of childhood diseases, drug interactions, rational drug therapy, adverse drug reactions,
- **Community Medicine**
 - Health care delivery systems — structure and function, health statistics, national programs
- **Pediatric Surgery**
 - Recognition and referral of surgical conditions in pediatrics
- **Radiology**
 - Clinical Indications and interpretations of X-ray, ultrasound, CT, MRI
- **Legal and Ethical Medicine**
 - Rights and protection of children, Consumer Protection Act, basic principles of ethics.

I. Postgraduate skills

Please note code:

PI: Perform Independently

PA: Perform with assistance

0: Observe

Number at end of item indicates minimum number of supervised and documented skills.

Psychomotor skills

Procedural

Procedures: List of PI Skills

- Clinical history and physical examination- 20
- Breast feeding management skills 20
- Neonatal resuscitation - basic and advanced 20
- Pediatric resuscitation - basic and advanced 20
- Intravenous injections 30
- Intravenous cannulation 30
- Lumbar puncture 25
- Test dose 10
- Infusions 10
- Mantoux test 10
- DPT, OPV, measles vaccination 10
- Blood transfusions 05
- Neonatal exchange transfusions 05
- ABG 05
- Central line, CVP 05
- Intraosseous 05
- Bone marrow aspiration, trephine biopsy 05
- Pleural tap 05
- Paracentesis — diagnostic and therapeutic 05
- Sampling for fluid cultures 05
- Liver biopsy 05
- Neonatal, pediatric partial exchange 02

Respiratory management (All PI)

- Nebulization 30
- Inhaler therapy 10
- Oxygen delivery 30

Critically Ill child (All PI)

• Monitoring a sick child	25
• ORS and ORT	10
• Infant feeding tube/ Ryles tube, stomach wash	05
• Urinary catheterization	05
• Restraining a child for a procedure	05
• Prognostication	--

Microbiology / Pathology (All PI)

• Urine protein, sugar, microscopy	05
• Peripheral blood smear	05
• Malarial smear	05
• Ziehl Nielson smear — sputum, gastric aspirate	05
• Grams smear — CSF, pus	05
• Stool pH, reducing substances, microscopy	05
• KOH smear	01

Neonatal tests (All PI)

• Apt test	02
• Shake test	02

Assessment skills (All PI)

• Anthropometry	30
• Dietary recall, calorie and protein estimation	30
• Nutritional advice	30
• Fundoscopy	10
• Otoscopy	10
• Gestational assessment	05
• Neurological examination of newborn	05
• Primitive reflexes	05
• Examination of external genitalia - male and female	05
• Tanner's SMR scales	02
• DDST or Baroda scales, TDS	02
• Amiel Telson's angles	02
• Per rectal examination	01

Interpretation (All PI)

- Clinical History and Physical examination -
- Blood, Urine, CSF and Fluid investigations – hematology & biochemistry 30
- Chest X-ray 30
- ECG 10
- Abdominal X-ray 10
- ABG interpretation 05

All PA

- CT scan brain 10
- Bone and joint X-ray 05
- Barium studies 05
- IVP, VUR studies 05
- Ultrasound abdomen 05
- Neurosonogram 05

Communication skills (All PI)

- Clinical history and physical examination
- Communicating management details
- Communicating good health, disease
- Communicating about a seriously ill or mentally abnormal child
- Communicating death
- Informed consent
- Empathy with a family
- Referral letters, replies
- Discharge summaries
- Death certificates
- Pre-counseling for HIV
- Post counseling for HIV

List of Observations:

- Genetic counseling 02
- Classification of diseases 02

List of PA skills:

- Sedation 05
- Analgesia 05
- Death declarations --
- Intercostal tube placement with underwater seal 02
- Peritoneal dialysis 01
- Subdural, ventricular tap 02

Teaching Learning Activities

Methods suggested for Pediatric Postgraduate Training Programs:

- **Didactic Lectures:** (Faculty lectures)

- *Objective:* To introduce a broad-based concept in an important area of learning to orient the postgraduate student.
- *Examples:* Potential introductory topics to pediatrics like fluid and electrolytes, early recognition of shock and respiratory failure, DTTU management, recent advances, basic science/ concepts and ARI program.
- *Frequency:* Three times a week during the introductory phase of the first one-two months of the new postgraduates joining the course. Following this period of orientation, it does not serve a purpose of self-directed learning and is best avoided as a regular activity except as an exceptional guest lecture.

- **Seminars:**

- *Objective:* To enable a student to study in depth an important area of learning important to the training of the student.
- *Examples:* Examples of potential seminar topics would be protein energy malnutrition, pediatric tuberculosis, pediatric HIV, bronchial asthma, chronic liver disease and its complications.
- *Frequency:* Three times a month. Topics to rotate once every 2-3 years (DCh, MD). Topic to be shared among 2-3 students and to be equally distributed depending upon the number of postgraduate students in the department.

- **Journal Club:**
 - *Objective:* To appreciate and enable the critical analysis of scientific literature published in peer reviewed journals, studies, reviews.
 - *Examples:* Articles like the study on prophylactic Zidovudine to HIV positive pregnant women in prevention of vertical transmission to the fetus, Digoxin versus Captopril in VSD in CCF, etc.
 - *Frequency:* Ideally, once in 1-2 months. MDs get the first opportunity and juniors begin after their first year in the course.

- **Bedside Clinics**
 - *Objective:* To learn bedside techniques - interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment and communication.
 - *Examples:* Child with hemiplegia, hepatosplenomegaly, anemia, jaundice, etc.
 - *Frequency:* Once in a week is the minimum as it forms the basis of good - clinical training activities.

- **Mortality Review Meeting**
 - *Objective:* To analyze, discuss and learn from mortalities.
 - *Methodology:* Once a month, all mortalities in the concerned department are presented to the department, both faculty and residents and pre-chosen cases are presented in detail. These cases are discussed further and after analysis shortcomings in diagnosis and treatment are identified to prevent future similar mortalities.
 - *Examples:* snake bite mortalities due to inadequate antivenom, failure to recognize early compensated circulatory failure or inadequate treatment of hyperkalemia.
 - *Frequency:* Once in a month preferably in the first week to allow the previous months mortality to be presented for discussion.

- **Grand Rounds**
 - *Objective:* To improve on bedside techniques - interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment, communication.

- *Examples:* The child with pyrexia of unknown origin, undiagnosed hepatosplenomegaly, multi-systemic disease.
 - *Frequency:* Once in a week presuming the Head of Unit of Department does not daily interfere with the day to day management of the ward except in special circumstances.
- **Inter-departmental meetings**
 - *Objective:* To experience inter-departmental cooperation and develop a healthy professional respect for each other's opinions in addition to the subject learning experience.
 - *Methodology:* Case discussions or students present investigations to members of both faculty. The discussion is a learning experience and improves communications between departments.
 - *Examples:* Chest X-rays of a complicated bronchopneumonia progressing to an empyema, CT scans of intra-cranial pathology, Tracheo-esophageal fistulae and supportive care.
 - *Frequency:* Once or twice in a month and rotated between departments - radiology, pediatric surgery, cardiology, nephrology, neurology, clinical hematology, etc.
- **Clinical Pathological Conference CPC**
 - *Objective:* To analyze clinical material to reach a differential diagnosis and correlate with the pathological biopsy findings.
 - *Frequency:* Once in two months. First choice is a senior MD student. All are encouraged to participate.
- **Records Round**
 - *Objective:* To appreciate the importance of documentation of facts and record keeping.
 - *Methodology:* Faculty in the presence of the team scrutinizes random case records. History sheets, doctor order sheets, progress sheets and discharge summaries are discussed.
 - *Frequency:* Once a week with the entire team present at the session.

Rotation Postings

1. Core

- a. Pediatrics – 13-17 months
- b. Neonatology - 3-5 months
- c. Intensive Care/Emergency- 1-2 months

2. Optional Specialities (subject to availability) – 4 months

- a. Oncology
- b. Neurology
- c. Pediatric surgery
- d. Nephrology
- e. Cardiology
- f. Clinical hematology
- g. Dermatology
- h. Pulmonology
- i. Gastroenterology
- j. Clinical Microbiology
- k. Community/Rural

Monitoring Progress of studies

- It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching & learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.
- The learning out comes to be assessed should included: (1) Personal Attitudes, (2) Acquisition of Knowledge, (3) Clinical and operative skills.

1. **Personal Attitudes.** The essential items are:

- Caring attitudes
- Initiative
- Organisational ability
- Potential to cope with stressful situations and undertake responsibility
- Trust worthiness and reliability
- To understand and communicate intelligibly with patients and others
- To behave in a manner which establishes professional relationships with patients and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge. The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. Acquisition of Knowledge: The methods used comprise of 'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

- *Journal Review Meeting (Journal Club):* The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, Chapter IV)
- *Seminars / Symposia:* The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio- visual aids are to be assessed using a checklist (see Model checklist-II, chapter IV)
- *Clinico-pathological conferences:* This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

3. Clinical skills

- *Day to day work:* Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model checklist III, chapter IV).
- *Clinical meetings:* Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV, chapter IV),
- *Clinical and Procedural skills:* The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No.3, chapter IV)

4. Periodic tests: The departments may conduct two tests, one of them be at the end of first year and the other in the second year three months before the final examination. The tests may include written papers, using practical / clinical and viva voce.

5. Work diary / Log Book: Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

6. Records: Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

7. Log book: The log book is a record of the important activities of the candidates during his training; internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.

Format for the log book for the different activities is given in Tables 1, 2 and 3 of Chapter IV. Copies may be made and used by the institutions.

Procedure for defaulters: Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

Scheme of Examination

a) Theory

There shall be three question papers, each of three hours duration. Each paper shall consist of two long essay questions each question carrying 20 marks and 6 short essay questions each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances may be asked in any or all the papers. Details of distribution of topics for each paper will be as follows:

Paper I : Emergency / Critical paediatrics
Newborn

Paper II : General Pediatrics I
General Paediatrics I includes: Respiratory, CNS, hematology, endocrine, gastroenterology, hepatology, renal, CVS, Oncology, collagen vascular.

Paper III : General Paediatrics II

General Paediatrics II includes: infections, miscellaneous (paed surgery, psychiatry, ENT, ophthalmology, metabolic, immunology etc), ambulatory (OPD) pediatrics, community and social pediatrics, including nutrition, immunization.

Basic Sciences and recent advances as applied to clinical paediatric disorders should be incorporated into relevant and appropriate question papers covering the respective areas.

Note: The distribution of chapters / topics shown against the papers are suggestive only.

b) Clinical Examination **150 Marks**

	No. of Cases	Marks
Long case	1	60
Short case	1	30
OPD case	1	20
Emergency case	1	20
Newborn	1	20
Total	5	150

c) Viva-Voce Examination: (50 Marks)

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression and interpretation of data. It includes all components of course contents. In addition candidates may also be given case reports, charts, gross specimens, pathology slides, instruments, X- rays, ultrasound, CT scan images, for interpretation. Questions on use of instruments may be asked.

d) Maximum marks for MD degree course

Theory	Practical	Viva	Grand Total
300	150	50	500

Recommended Books and Journals Texts:

Essential

1. Nelson's Textbook of Pediatrics, Harcourt Asia Saunders
2. Cloherty's Manual of Neonatal Care
3. Meharban Singh's Care of the Newborn
4. Harriat Lane
5. Manual of Pediatric Therapeutics, Little Brown's Children's Hospital, Boston.
6. O.P. Ghai's Textbook of Pediatrics

Reference

1. Rudolf's Pediatrics, Appelton and Lange
2. Forfar and Arneil's Textbook of Pediatrics, ELBS
3. Frank Oski's Principles and Practice of Pediatrics
4. Avery's Disease of the Newborn
5. Roberton's Textbook of Neonatology
6. Illingworth's The normal child
7. Guha's Textbook of Neonatology
8. IAP Textbook of Pediatrics
9. Nadas' Pediatric Cardiology
10. Perloff's Approach to Congenital Heart Disease
11. Moss and Adam's Heart Disease in Infants, children and Adolescent
12. Miller's Blood Diseases of Infancy and Childhood
13. DeGruchy's Clinical Hematology in Medical Practice
14. Barret and Holiday's Pediatric Nephrology
15. Caffey's Pediatric X-Ray diagnosis
16. Alleyne's Protein Energy Malnutrition
17. Miller, Tuberculosis
18. Vimlesh Seth, Tuberculosis
19. Swanson's Pediatric Surgery
20. Cherry and Feigen's Pediatric Infectious Diseases
21. Fenichel's Pediatric Neurology
22. Kendig's Respiratory Diseases in Pediatrics
23. Alex Mowat's Liver Disease in Children
24. Roger's Pediatric Critical Care
25. H.P.S. Sachdev's Principles of Pediatric and Neonatology Emergencies
26. Smith's Recognition patterns of Human Malformations

Indexed, Journals

1. Indian Pediatrics
2. Indian Journal of Pediatrics
3. Pediatric Clinics of North America
4. New England Journal of Medicine
5. Lancet
6. British Medical Journal
7. Journal of Pediatrics
8. Archives Disease of Childhood and Adolescence
9. Pediatrics
10. Perinatal Clinics of North America

Reference Series

1. Suraj Gupta's Recent Advances in Pediatrics
2. David's Recent Advances in Pediatrics
3. Advances in Pediatrics
4. Year Book of Pediatrics

Annexure

Record to be maintained by Postgraduate students for internal evaluation

Name Academics Service Skills Responsibility

Name	Teaching Programs	Discussion	Patient work	Patient care	Procedure	Communication	Discipline	Punctualty	Anecdotal events +/-

Pediatric Postgraduate Training 'Log book'

Contents:

1. Personal Data:

Name
 Institution
 Dates of Postgraduation studies
 Joining
 Completion
 Degree
 University
 Dissertation Title
 Name and Designation of Guide
 Signature of candidate
 Signature of Supervisor
 Signature of Head of Department

2. Professional Education: (eg. MBBS, DCh)

Degree	Institution	University	Dates of Training

3. Professional Experiences: (eg. SHO Pediatrics, CMO, Tutor)

Professional Post	Institution	Dates of Work period

4. Clinical Postings: (eg. General Pediatrics, PICU, NICU, Oncology, Neurology)

Speciality	Duration	Dates of Posting

5. Case Presentations: (eg. Clinics, tutorials)

Date	Name/age/sex	Problem/Diagnosis	Grade	Supervisor

6. Seminars: (eg. Seminar on TB)

Date	Topic of Presentation	Grade	Supervisor

7. Mortality meetings: (eg. Mortality case discussion)

Date	Name/age/sex	Problem/Diagnosis	Supervisor

8. Multi-disciplinary meetings: (eg. Urinary lithiasis with Urology and Nephrology)

Date	Topic	Departments involved

9. Community Activity: (eg. Pulse polio, Education programs, Rural visits, slum visits)

Date	Description of Activity	Supervisor

10. Paper Presentation: (Local, State, National, International Forum- eg. IAP local meetings, NNF meetings)

Date	Title of Paper presented	Supervisor

11. Academic Meetings, CMEs and Conferences attended :
(Extra mural, Local, State, National, International Forum-eg. IAP local meetins, NNF meetings)

Date	Title	Organization

12. Training Courses: (eg. BFHI loctation course, PALS, NALS, Research methodology)

Date	Title	Supervisor

CHAPTER IV

Monitoring Learning Progress

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring shall be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Model checklists are given in this chapter which may be copied and used.

The learning out comes to be assessed should include:

1. Personal Attitudes.
2. Acquisition of Knowledge.
3. Clinical and operative skills and
4. Teaching skills.

1. Personal Attitudes: The essential items are:

- a. Caring attitude.
- b. Initiative.
- c. Organisational ability.
- d. Potential to cope with stressful situations and undertake responsibility.
- e. Trust worthiness and reliability.
- f. To understand and communicate intelligibly with patients and others.
- g. To behave in a manner that establishes professional relationships with patients and colleagues.
- h. Ability to work in a team.
- i. A critical enquiring approach to the acquisition of knowledge.

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. Acquisition of Knowledge: The methods used comprise of 'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

- a. **Journal Review Meeting (Journal Club).** The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, Chapter IV)
- b. **Seminars / Symposia.** The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio- visual aids are to be assessed using a checklist (see Model Checklist-II, Chapter IV)
- c. **Clinico-pathological conferences.** This should be a multidisciplinary study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.
- d. **Medical Audit.** Periodic morbidity and mortality meeting shall be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

3. Clinical skills:

- a. **Day to Day work:** Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model Checklist III, Chapter IV).
- b. **Clinical meetings:** Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV, Chapter IV).
- c. **Clinical and Procedural skills:** The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No.3, Chapter IV)

4. Teaching skills: Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See Model checklist V, Chapter IV)

5. Periodic tests: In case of degree courses of three years duration, the department may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. In case of diploma courses of two

year duration, the departments may conduct two tests. One of them at the end of first year and the other in the second year, three months before the final examination. The tests may include written papers, practical / clinical and viva voce.

6. Work diary: Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

7. Records: Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

8. Log book: The log book is a record of the important activities of the candidates during his training. Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate. Format for the log book for the different activities is given in Tables 1, 2 and 3 of Chapter IV. Copies may be made and used by the institutions.

Procedure for defaulters: Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set him or herself right.

CHAPTER IV (Contd)
Format of Model Check Lists

Check List-I

**MODEL CHECK-LIST FOR EVALUATION OF
JOURNAL REVIEW PRESENTATIONS**

Name of the Student:

Name of the Faculty/Observer:

Date:

Sl No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Article chosen was					
2.	Extent of understanding of scope & objectives of the paper by the candidate					
3.	Whether cross references have been consulted					
4.	Whether other relevant publications consulted					
5.	Ability to respond to questions on the paper / subject					
6.	Audio-visual aids used					
7.	Ability to defend the paper					
8.	Clarity of presentation					
9.	Any other observation					
	Total Score					

Check List – II

MODEL CHECK-LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Student:

Name of the Faculty/Observer:

Date:

Sl No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Whether other relevant publications consulted					
2.	Whether cross references have been consulted					
3.	Completeness of Preparation					
4.	Clarity of Presentation					
5.	Understanding of subject					
6.	Ability to answer questions					
7.	Time scheduling					
8.	Appropriate use of Audio-Visual aids					
9.	Overall Performance					
10.	Any other observation					
	Total Score					

Check List - III

MODEL CHECK LIST FOR EVALUATION OF CLINICAL WORK IN WARD / OPD

(To be completed once a month by respective Unit Heads, including posting in other departments)

Name of the Student:

Name of the Faculty/Observer:

Date:

SI No	Points to be considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Regularity of attendance					
2.	Punctuality					
3.	Interaction with colleagues and supportive staff					
4.	Maintenance of case records					
5.	Presentation of cases during rounds					
6.	Investigations work up					
7.	Beside manners					
8.	Rapport with patients					
9.	Counseling patient's relatives for blood donation or Postmortem and Case follow up.					
10.	Overall quality of ward work					
	Total Score					

Check List - IV

EVALUATION FORM FOR CLINICAL PRESENTATION

Name of the Student:

Name of the Faculty:

Date:

SI No	Points to be considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Completeness of history					
2.	Whether all relevant points elicited					
3.	Clarity of Presentation					
4.	Logical order					
5.	Mentioned all positive and negative points of importance					
6.	Accuracy of general physical examination					
7.	Whether all physical signs elicited correctly					
8.	Whether any major signs missed or misinterpreted					
9.	Diagnosis: Whether it follows logically from history and findings					
10.	Investigations required ▪ Complete list ▪ Relevant order ▪ Interpretation of investigations					
11.	Ability to react to questioning Whether it follows logically from history and findings					
12.	Ability to defend diagnosis					
13.	Ability to justify differential diagnosis					
14.	Others					
	Total Score					

Check List - V

MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

SI No		Strong Point	Weak Point
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples and/or illustrations		
6.	Speaking style (enjoyable, monotonous, etc., specify)		
7.	Attempts audience participation		
8.	Summary of the main points at the end		
9.	Asks questions		
10.	Answers questions asked by the audience		
11.	Rapport of speaker with his audience		
12.	Effectiveness of the talk		
13.	Uses AV aids appropriately		

Check List - VI

MODEL CHECK LIST FOR DISSERTATION PRESENTATION

Name of the Student:

Name of the Faculty:

Date:

Sl No	Points to be considered divine	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Interest shown in selecting a topic					
2.	Appropriate review of literature					
3.	Discussion with guide & other faculty					
4.	Quality of Protocol					
5.	Preparation of proforma					
	Total Score					

Check List - VII

**CONTINUOUS EVALUATION OF DISSERTATION
WORK BY GUIDE / CO GUIDE**

Name of the Student:

Name of the Faculty:

Date:

SI No	Items for observation during presentations	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Periodic consultation with guide/co-guide					
2.	Regular collection of case Material					
3.	Depth of analysis / discussion					
4.	Departmental presentation of findings					
5.	Quality of final output					
6.	Others					
	Total Score					

LOG BOOK

Table 1: Academic activities attended

Name:

Admission Year:

College:

Date	Type of Activity Specify Seminar, Journal Club, Presentation, UG teaching	Particulars

LOG BOOK

Table 2: Diagnostic and Operative procedures performed

Name:

Admission year:

College:

Date	Name	ID No.	Procedure	Category O, A, PA, PI*

*** Key:**

O - Washed up and observed

A - Assisted a more senior Surgeon

PA - Performed procedure under the direct supervision of a senior Surgeon

PI - Performed independently

Model Overall Assessment Sheet

Name of the College:

Academic Year:

SI No	Faculty Member & Others	Name of Student and Mean Score												
		A	B	C	D	E	F	G	H	I	J			
1.														
2.														
3.														
4.														
5.														
	Total Score													

Chapter V

Medical Ethics

Sensitisation and Practice

Introduction

There is now a shift from the traditional individual patient- doctor relationship and medical care. With the advances in science and technology and the needs of patients, their families and the community, there is an increased concern with the health of society. There is a shift to greater accountability to the society. Doctors and health professionals are confronted with many ethical problems. It is, therefore necessary to be prepared to deal with these problems. To accomplish the Goal and General Objective stated in Chapter II and develop human values it is urged that ***ethical sensitisation*** be achieved by lectures or discussion on ethical issues, clinical discussion of cases with an important ethical component and by including ethical aspects in discussion in all case presentation, bedside rounds and academic postgraduate programmes.

Course Contents

1. Introduction to Medical Ethics

- What is Ethics?
- What are values and norms?
- Relationship between being ethical and human fulfillment.
- How to form a value system in one's personal and professional life.
- Heteronomous Ethics and Autonomous Ethics.
- Freedom and personal Responsibility.

2. Definition of Medical Ethics

- Difference between medical ethics and bio-ethics
- Major Principles of Medical Ethics
 - Beneficence = fraternity
 - Justice = equality
 - Self determination (autonomy) = liberty

3. Perspective of Medical Ethics

- The Hippocratic Oath.
- The Declaration of Helsinki.
- The WHO Declaration of Geneva.
- International code of Medical Ethics. (1993)
- Medical Council of India Code of Ethics.

4. Ethics of the Individual

- The patient as a person.
- The Right to be respected.
- Truth and Confidentiality.
- The autonomy of decision.
- The concept of disease, health and healing.
- The Right to health.
- Ethics of Behaviour modification.
- The Physician – Patient relationship.
- Organ donation.

5. The Ethics of Human life

- What is human life?
- Criteria for distinguishing the human and the non-human.
- Reasons for respecting human life.
- The beginning of human life.
- Conception, contraception.
- Abortion.
- Prenatal sex-determination.
- In vitro fertilization (IVF).
- Artificial Insemination by Husband (AIH).
- Artificial Insemination by Donor (AID).
- Surrogate motherhood.
- Semen Intra-fallopian Transfer (SIFT).
- Gamete Intra-fallopian Transfer (GIFT).
- Zygote Intra-fallopian Transfer (ZIFT).
- Genetic Engineering.

6. The Family and Society in Medical Ethics

- The Ethics of human sexuality.
- Family Planning perspectives.
- Prolongation of life.
- Advanced life directives – The Living Will
- Euthanasia
- Cancer and Terminal Care

7. Profession Ethics

- Code of conduct.
- Contract and confidentiality.
- Charging of fees, Fee-splitting.
- Prescription of drugs.
- Over-investigating the patient.

- Low – Cost drugs, vitamins and tonics.
- Allocation of resources in health care.
- Malpractice and Negligence.

8. Research Ethics

- Animal and experimental research / humaneness.
- Human experimentation.
- Human volunteer research — Informed Consent Drug trials.

9. Ethical workshop of cases

- Gathering all scientific factors.
- Gathering all human factors.
- Gathering all value factors.
- Identifying areas of value — conflict, setting of priorities
- Working out criteria towards decisions.

Recommended Reading

1. Francis C.M., Medical Ethics, 1 Ed, 1993, Jaypee Brothers, New Delhi, p 189, Rs. 150/-
2. Good Clinical Practices : GOI Guidelines for clinical trials on Pharmaceutical Products in India (www.cdsco.nic.in)
3. INSA Guidelines for care and use of Animals in Research – 2000.
4. CPCSEA Guidelines 2001 (www.cpcsea.org.)
5. Ethical Guidelines for Biomedical Research on Human Subjects, 2000, ICMR, New Delhi.
6. ICMR Guidelines on animal use 2001, ICMR, New Delhi.