



**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences

Programme Structure and Course Details

Of

M.CH Pediatric Surgery 2022 onwards

M.S. Ramaiah University of Applied Sciences

Ramaiah Medical College

Registrar

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Bangalore - 560 054

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**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences

Programme Specifications

M.CH Pediatric Surgery Programme 2022

onwards

Programme Code: MD160

M.S. Ramaiah University of Applied Sciences

Ramaiah Medical College

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University's Vision, Mission and Objectives

The M. S. Ramaiah University of Applied Sciences (MSRUAS) will focus on student-centric professional education and motivates its staff and students to contribute significantly to the growth of technology, science, economy and society through their imaginative, creative and innovative pursuits. Hence, the University has articulated the following vision and objectives.

Vision

MSRUAS aspires to be the premier university of choice in Asia for student centric professional education and services with a strong focus on applied research whilst maintaining the highest academic and ethical standards in a creative and innovative environment

Mission

Our purpose is the creation and dissemination of knowledge. We are committed to creativity, innovation and excellence in our teaching and research. We value integrity, quality and teamwork in all our endeavors. We inspire critical thinking, personal development and a passion for lifelong learning. We serve the technical, scientific and economic needs of our Society.

Objectives

1. To disseminate knowledge and skills through instructions, teaching, training, seminars, workshops and symposia in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to equip students and scholars to meet the needs of industries, business and society
2. To generate knowledge through research in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to meet the challenges that arise in industry, business and society
3. To promote health, human well-being and provide holistic healthcare
4. To provide technical and scientific solutions to real life problems posed by industry, business and society in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences
5. To instill the spirit of entrepreneurship in our youth to help create more career opportunities in the society by incubating and nurturing technology product ideas and supporting technology backed business
6. To identify and nurture leadership skills in students and help in the development of our future leaders to enrich the society we live in
7. To develop partnership with universities, industries, businesses, research establishments, NGOs, international organizations, governmental organizations in India and abroad to enrich the experiences of faculties and students through research and developmental programmes

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Programme Specifications: M. Ch Paediatric Surgery

Faculty	Ramaiah Medical College
Department	Paediatric Surgery
Programme	M.Ch – Paediatric Surgery
Programme Code	M.CH160
Dean of Faculty	Dr Shalini C Nooyi
Head of the Department	Dr Padmalatha S Kadamba

1. Title of the Award: M.Ch in Paediatric Surgery
2. Mode of Study: Full-Time
3. Awarding Institution /Body: M. S. Ramaiah University of Applied Sciences, Bengaluru
4. Joint Award: Not Applicable
5. Teaching Institution: Ramaiah Medical College
6. Date of Programme Specifications: September 2022
7. Date of Programme approval by the academic Council of MSRUAS : 27th September 2022
8. Programme Approving Regulating Body and Date of Approval: National Medical Council of India
9. Rationale for the Programme

The purpose of PG education is to create specialists who would provide high quality healthcare and advance the cause of science of Paediatric Surgery through research & training. Paediatric Surgery is a highly specialized and technical discipline in clinical practice comprising treatment of children requiring surgery below the age of 18 years. With a view to update, by inclusion of newer topics, and to provide a uniform syllabus and course contents in Indian universities and teaching medical institutions, the proposed guidelines provide course outlines based on recent developments in clinical practice and other disciplines related to Paediatric Surgery.



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Programme objectives (PO) for M.Ch Paediatric Surgery Postgraduate students

PO1. Develop the knowledge, skills and attitude to be a competent Paediatric Surgeon.

PO2. Demonstrate a commitment to excellence and continuous professional development with integrity. To be compassionate and sensitive to patient care.

PO3. To be able to Acquire and develop the knowledge, skills and attitude required to be an ethical researcher and teacher.

PO4. To be able to independently perform surgical procedures applicable to Paediatric Surgery speciality with a reasonable degree of professionalism and competence.

Programme specific outcome (PSO) for M.Ch Paediatric Surgery Postgraduate students

PSO1. To acquire clinical skills in taking proper clinical history, clinical examination, relevant investigations. To diagnose reasonable surgical conditions.

PSO2. To be able to advise specific investigation like CT scan, MRI and Doppler studies for particular cases and should be able to diagnose with reasonable accuracy.

PSO3. To be able to handle paediatric surgery equipments like laparoscopic instruments, endoscopes and basic paediatric surgery instruments.

PSO4. To be able to teach and assess undergraduates and broad speciality surgical postgraduates with the help of senior surgeons and also be able to conduct fundamental research activities independently or as a team member.

PSO5. To apply skills learnt in the advanced learning center for patient care, application of principles of professionalism, ethics and effective communication in the conduct of routine paediatric surgery services, teaching activities and research.

PSO6. To be able to perform basic paediatric surgery procedures independently.



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Course- PO - PSO Mapping

Course Code and name	Program Outcomes				Program Specific Outcomes					
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
MCHC517A Basic Sciences in Pediatric Surgery, Trauma, Transplantation	3	3	3	2	3	2	2	3	2	3
MCHC518A Regional Pediatric Surgery - 1	3	3	3	3	3	2	3	2	3	3
MCHC519A Regional Pediatric Surgery - 2	3	3	3	3	3	3	3	3	2	3
MCHC520A Recent advances in Pediatric surgery relevant to Surgical Oncology	3	3	2	3	3	3	3	3	2	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										



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10. Regulations:**(A) Attendance, Progress and Conduct**

1. A candidate pursuing degree course should work in the concerned department of the institution for the full period as a full time student. No candidate is permitted to run or work in clinic/laboratory/nursing home while studying postgraduate course. No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of study.
2. Each term shall be taken as a unit for the purpose of calculating attendance. Attendance of 80% every term is mandatory for appearing in the final university examination.
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.
4. Every candidate is required to attend a minimum of 80% of the training during each academic term 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 term.
5. Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examinations.

(B) Monitoring of progress of Studies

1. Work diary / Log Book - Every candidate shall maintain a work diary and record of his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. as per the model checklists and logbook specimen copy.
2. Special mention may be made of the presentations by the candidate as well as details of clinical or planning procedures, if any conducted by the candidate. The work diary shall be scrutinized and certified by the Head of the Department and Head of the Institution, and presented in the university practical/clinical examination.
3. Procedure for defaulters: There will be a committee constituted by all teachers to review such situations. The defaulting candidate is counselled by the guide and head of the department. In extreme cases of default, the departmental committee may recommend that defaulting candidate will be withheld from appearing the examination, if she/he fails to fulfil the requirements in spite of being given adequate chances to set himself or herself right.

11. Teaching Learning Methods:**The goals of training in M.Ch. (Paediatric Surgery) are:**

1. To inculcate and further human values of empathy, care and discipline in medical practice
2. To enable the candidate to view the child as a special individual with unique needs and Paediatric Surgery as a specialty.
3. To train the candidate to practice Paediatric surgery based on a sound back ground

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knowledge and skill

4. To train the candidate to be a teacher of Paediatric surgery and continually update himself/herself with recent advances / changes in medical practice.
5. To empower the candidate with the necessary knowledge and expertise to set up a Paediatric surgery unit / department.
6. To contribute to the all round formation and development of the student in a holistic sense.

Objectives:

The training should aim to facilitate the candidate's acquisition of a judicious mix of the three domains of learning

a. Knowledge

1. Be conversant with the etiology, pathophysiology, diagnosis and management of common neonatal and Paediatric surgical problems; both elective and emergency in nature.
2. Have a clear understanding of the basic sciences (anatomy, physiology etc), Paediatric and neonatal medicine as applicable to Paediatric surgical practice.
3. Recognize the importance of inter disciplinary approach in the management of various Paediatric surgical disorders and obtain relevant specialist / ancillary services' consultation where appropriate.
4. Gained experience in clinical research studies and published articles / presented work at scientific meet / conferences.
5. Recognize the importance of family, society and socio-cultural environment in the treatment of the sick child.

Practice

1. Evaluate a given patient completely (history, clinical examination), order relevant investigations and interpret them to reach a diagnosis and management strategy.
2. To perform simple investigations / procedures (bedside, laboratory, radiology suite) independently.
3. Be able to provide basic and advanced life support services in emergencies.
4. Be able to prepare a patient for an elective / emergency surgery and post operative period.
5. Be conversant with counseling techniques for the family / primary care takers.
6. Be skilled in the performance of routine ward procedures (eg. venesection, bladder catheterization, dressings, and mechanical bowel preparation).
7. Be able to perform prescribed minor and major operative procedures with assistance and independently.
8. Be able to monitor the patient post operatively in the intensive care setting / routine post op ward.
9. Be ready to provide relevant advice to patient and family at discharge for follow up.

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b. Communication skills

1. Develop and practice effective communication skills.
2. Professionally interact and obtain relevant specialist/ancillary services' consultation where appropriate
3. Display the ability to impart the acquired training to others in a teaching unit and establish a Paediatric surgical unit.

c. Medical Ethics and Human values

Adoption of ethical principles in all aspects of Paediatric surgical practice/ research. (Professional honesty and integrity, humility, informed consent, counseling, recognize patients' rights and privileges, etc).

1. Academic sessions

During the course, the candidate shall present some academic sessions and attend the others. Each session will be designed for at least 1 hour with at least 15 minutes devoted to a discussion on the topic

An academic session may be any of the following –

1. Subject seminar and / or symposium- at least 2 such sessions are recommended every month. The presenter is either one (Seminar) or a multidisciplinary team (Symposium). The seminars / symposia are aimed to cover the majority of topics in the syllabus. Each candidate shall present at least 6 seminars/symposia in one academic year and attend at least 12 others.
2. Journal review -: Recommended at least once a fortnight. Relevant articles from recommended journals are reviewed. Each candidate shall present at least 6 journal reviews in one academic year and attend at least 12 others.
3. Clinical case presentation – Representative clinical cases shall be presented and discussed in detail in these sessions. Two such sessions are recommended every month and should include a mix of short and long cases. Each candidate shall present at least 6 clinical cases in one academic year and attend at least 12 others.
4. Inter departmental meetings –Inter departmental meetings shall facilitate clinical/ group discussion / symposia etc (e.g., paediatric pathology, radiology meeting.) Two such monthly meets are recommended. Each candidate shall present at least 6 such meets in one academic year and attend at least 12 others. eg.
5. Paediatric pathology meet –This is conducted in association with the consultant pathologist(s). The subject may include histopathology review, clinicopathological conferences, autopsy discussion etc.,
6. Paediatric radiology meeting –Organized along with consultant Radiologist(s), it enables a discussion of common and uncommon radiological investigations in general or certain clinical cases in particular.
7. Operative procedures – This session, recommended once a month, aims at discussing common operative procedures and practical details. Each candidate shall present at

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least 3 such meets in one academic year and attend at least 6 others.

8. Treatment planning – Recommended once monthly, this session will focus on management strategies of specific clinical cases, particularly where a multi specialty approach is planned. Each candidate shall present at least 3 such meets in one academic year and attend at least 6 others.
9. Ward rounds and Teaching round – There would be at least once consultant led ward round daily. This would be a service round with individual case presentation and brief discussion. In addition, at least 3 teaching rounds per week are recommended involving detailed discussion on admitted clinical cases. Besides theoretical aspects, emphasis must be laid on bedside assessment and practical management issues.

2. External Postings

The M.Ch. (Paediatric Surgery) trainee will be posted in the following allied specialties. The total duration of these postings shall not exceed 4 months or 16 weeks.

- a. Paediatric Intensive Care Unit: Duration- 4-6 weeks. This is intended to familiarize the candidate to the principles of Paediatric medical intensive care and its applications to Paediatric surgical care.
- b. Neonatology Intensive Care Unit: Duration- 4-6 weeks. During this posting, the candidate will receive training on care of the sick neonates, particularly prematures and small for dates. Neonatal resuscitation, management of common neonatal problems (e.g. hypoglycemia, hyperbilirubinemia) and advanced life support systems (e.g., ventilatory care) will be included.
- c. Paediatric Oncology: Duration-4 weeks. The candidates will be posted in a Paediatric oncology unit to familiarize them with the management of common solid tumors of childhood.
- d. Optional - other postings may be scheduled as deemed necessary for fulfillment of curricular demands e.g.: posting to other M.Ch training centers (at least for two weeks), Plastic surgery, Neuro surgery, Vascular surgery, Obstetrics, Experimental/Animal lab etc.

3. Conference, CME's and Workshops

Participating and contributing to the organization of such meets is desirable. During the 3-year period of training; he/she should attend at least one national level and two state level meets and present a paper in each of them.

4. Research activity

The candidate must be familiar with basic research methodology including statistical methods and undertake at least one research project under the guidance of a postgraduate teacher. The research may be basic or clinical. This will be assigned to the candidate at the inception of the training and he/she will be required to submit a report on the same by the end of the course. This may form the basis of a publication.

5. Publications

The M.Ch. trainee will be required to prepare material for publication under the guidance

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of a postgraduate teacher. He / She must have submitted for publication at least 1 original article and 2 brief /case reports during the course.

6. Teaching

The candidate will assist and be involved in the teaching of under graduate medical/ nursing students and PG students in MS (Gen. Surg.) and MD (Paed). He/she will learn selection and application of various teaching methods and media.

Structure of the Training Course

I Year

Academic	Training	Procedure / operative skills
<ul style="list-style-type: none"> Seminars Journal Review Departmental presentation (in house) Project work 	<ul style="list-style-type: none"> Case Notes Presentation on rounds Summary Communication skills Computer skills; computer assisted learning NALS/PALS course 	<ul style="list-style-type: none"> Resuscitation Bedside procedures Minor OT procedure (eg. Herniotomy, orchidopexy) Major OT procedures (eg., neonatal colostomy, laparotomy for intestinal obstruction.)

II Year

Academic	Training	Procedure / operative skills
<ul style="list-style-type: none"> Seminars Operative procedure Inter departmental presentation Publication: Conference / workshop/ CME 	<ul style="list-style-type: none"> External postings Research activity Pedagogy course. (Teacher's training) 	<ul style="list-style-type: none"> Simple endoscopic procedures (e.g. cystoscopy, bronchoscopy for foreign body) Major OT procedures (e.g. pyelolithotomy, laparotomy for trauma.

III Year

Academic	Training	Procedure / operative skills
<ul style="list-style-type: none"> Treatment planning Operative procedures. Symposium Publication 	<ul style="list-style-type: none"> Planning a department (Equipment, administration etc.) <p><i>Ge</i> Registrar M.S. Ramaiah University of Applied Sciences Bangalore - 560 054</p>	<ul style="list-style-type: none"> Endoscopic procedure (e.g. laparoscopy) Major OT procedure (e.g. neonatal bowel anastomosis, pyeloplasty) Neonatal surgery.

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12. Innovative teaching learning practices

1. Theme based teaching learning activities eg..Hands on Minimal access surgery
2. Focused discussion during journal club inculcates culture in the areas of research and publication
4. Faculty Lectureduring4th week: Helps in bridging the gap between what is presented during the month and what is not about particular topic. Also it reinforces learning

13. Assessment: 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 will be done by the staff of the department based on participation of students in various teaching/learning activities.

1. Regular formative assessments which includes Open book exams, OSCE, Impact: SWOT analysis can be done and timely counselling can be done.
2. Theory paper covering basic topics in paediatric surgery at the end of 1st year. FA at the end of second year will be on common plastic surgical procedures. Mock summative assessment will be conducted in the same pattern as university exams three months before the final exams.
3. Teaching skills: Candidates are encouraged to teach undergraduate medical students and paramedical students, if any. In addition, the second year student acts as a mentor for the immediate junior in all aspects of the course.
4. Blue printing of the question for the formative assessment
 - 1st year – Basic sciences and general paediatric surgery
 - 2nd year – Sub specialties topics – Paediatric urology, Onco surgery, Thoracic surgery, Neuro surgery and reconstructive surgery
 - 3rd year – Recent advances in paediatric Surgery
5. Assessment of seminar and journal club presentations by faculty
6. Documentation in log books with periodic monitoring by faculty
7. Formulation and conduct of a research project
8. Summative university examination



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Scheme of Examination:**A. Theory (Written Paper) 400 marks**

There shall be four question papers, each of three hours' duration. Each paper shall consist of 10 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.

Name of the course	Course Code	Topics	Marks
Basic Sciences in Pediatric Surgery, Trauma, Transplantation	MCHC517A	Should have basic knowledge about neonatal physiology, pathophysiology of acute paediatric emergencies.	100
Regional Pediatric Surgery - 1	MCHC518A	a) Hernia b) Phimosis c) Undescended testis	100
Regional Pediatric Surge-2	MCHC519A	Reconstructive paediatric urology, thoracic surgeries, neonatal surgeries and tumour excisions	100
Recent advances in Pediatric surgery relevant to Surgical Oncology	MCHC520A	Recent advances in Paediatric Surgery covering all sub specialities	100

A. Clinical:200marks

One long case of 80 and three short cases of 40 each.

B. VivaVoice: 100 marks**1) Viva-Voce Examination:(100Marks)**

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 be also be given case reports, charts, gross specimens, pathology slide, Instruments, X-rays, ultrasound, CT scan images for interpretation.

C. Total Marks Distribution:

Maximum marks for M.Ch degree course	Theory	Practical	Viva	Grand Total
	400	200	100	700



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Annexures

Annexure 1_Overall course plan year-wise

Annexure 2_List of operative procedures

Annexure 3_Sample of monthly schedules

Annexure 4_PG outside posting policy

Annexure 5_Logbook entry



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Annexure 1**MONTHWISE TEACHING SCHEDULE FOR POST GRADUATES DEPARTMENT OF PAEDIATRIC SURGERY**

MONTH	TOPICS	Teacher
January	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
February	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
March	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
April	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
May	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
June	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
July	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
August	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
September	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
October	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
November	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
December	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator

Note:

1. The respective faculty will be in charge of the entire process planning, implementation and assessment.
2. It is preferable to put the time table latest by 25th of previous month.
3. PGs are expected to keep in touch with the respective teachers well ahead of the class.



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Annexure 2**Operative Procedures**

The candidate should receive graded exposure in the performance of the following operative procedures. They are to be recorded as O-Observed, A-Assists senior, PA-Performs with assistance from a senior or under supervision, P-Performed independently during the course. The following is the suggested minimum number of procedures in each category over three years. The actual numbers performed may vary according to the patient load of the training unit and related departments.

	O	A	PA	P
TRAUMA				
1. Wound debridement	3	3	5	15
2. Wound suturing	3	3	5	15
3. Amputation	1	1	1	0
4. Laparotomy for trauma	2	4	2	0
5. Thoracotomy for trauma	1	2	2	0
ONCOLOGY				
7. Percutaneous tumor biopsy	3	5	5	3
8. Open tumor biopsy	2	2	2	1
9. Lymph node biopsy	2	3	5	10
10. Tumour excision	5	10	3	1
HEAD AND NECK				
1. Craniosynostoses	2	1	0	0
2. Cleft lip repair				
3. Unilateral	3	3	1	0
4. Bilateral	3	3	1	0
5. Revision	2	2	0	0
6. Palatoplasty	3	2	0	0
7. Palatal fistula repair	2	2	0	0
8. Palatopharyngoplasty	2	1	0	0
9. Salivary gland excision	3	2	0	0
10. Salivary duct / orifice dilatation	1	2	2	1
11. Marsupialization-Ranula	1	2	2	2
12. Abscess drainage	2	2	5	15
13. Sistrunk's procedure	2	2	2	0
14. Thyroidectomy	1	1	0	0
15. Excision of branchial remnants	1	2	2	1
16. Excision of dermoid cysts.	1	1	2	2
17. Sternomastoid release	1	1	2	1
18. TM joint ankylosis	1	1	0	0
THORAX				
1. Mastectomy	1	1	0	0

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2. Repair of Pectus Excavatum	1	1	0	0
3. Repair of Pectum Carinatum	1	1	0	0
4. Repair of cong. diaphragmatic hernia	3	3	2	1
5. Repair of Morgagni hernia	1	1	0	0
6. Repair of hiatus hernia	1	1	0	0
7. Repair of eventration diaphragm	2	3	2	1
8. Mediastinal mass excisions.	2	2	1	0
9. Laryngoscopy	2	3	2	2
10. Bronchoscopy				
11. Diagnostic	10	10	5	3
12. Therapeutic	10	10	5	3
13. Thoracoscopy				
14. Diagnostic	3	2	1	0
15. Therapeutic	3	2	1	0
16. ICTD insertion	3	5	5	15
17. Decortication.	3	5	2	1
18. Pulmonary resection.	3	2	1	0
19. Esophagoscopy				
20. Diagnostic	3	3	1	0
21. Therapeutic	3	3	1	0
22. UGI endoscopy	5	2	0	0
23. Repair of TEF				
24. Primary	3	5	1	0
25. Re exploration	2	2	0	0
26. Esophageal diversion	3	5	2	0
27. Repair of H-type TEF	2	2	0	0
28. Esophageal dilatation.	3	5	3	1
29. Esophageal replacement	2	2	0	0
30. Fundoplication	2	2	0	0
31. Aortopexy.	1	1	0	0
32. Tracheostomy	3	2	1	1
ABDOMEN				
33. Surgery for Vitellointestinal duct remnants	3	3	1	0
34. Abdominal wall defect.				
35. Primary repair				
36. Exomphalos	2			
37. Gastroschisis	2			
38. Abdominal wall defects				
39. Silo construction	1	1	0	0
40. Inguinal hernias and hydrocele	5	10	10	5
41. Umbilical hernia	2	3	2	1
42. Orchidopexy Single staged	3	10	5	2
43. Staged Open	3	3		
44. Lap assisted	2	2	1	0
45. Expl for torsion testes	2	2	2	1
46. Orchidectomy	1	1	1	0
47. Surgery for varicocele	2	2	0	0
48. Pyloromyotomy.	3	5	3	1
49. Duodenoduodenostomy	2	2	0	0

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50. Neonatal small bowel atresia – REEA	2	5	1	0
51. Surgery for meconium ileus.	2	2	1	0
52. Meckel's diverticulectomy	2	3	2	1
53. Non-operative reduction of intussusception.	2	3	3	1
54. Operation for intussusception.	2	5	3	1
55. Ladd's procedure.	2	4	2	0
56. Release of Congenital bands	2	2	1	1
57. Laparoscopy Diagnostic	10	5	3	1
58. Therapeutic.	5	4	1	0
59. Colonoscopy	3	2	0	0
60. Rectal polypectomy	5	3	3	5
61. Gastrostomy Formation	2	3	1	1
62. Closure	1	2	1	0
63. Enteral stoma (ileostomy / colostomy) Formation.	3	10	5	2
64. Closure	3	10	5	2
65. Feeding jejunostomy	1	2	1	0
66. Gastrojejunostomy	1	1	0	0
67. Mesenteric cyst excision	2	3	1	0
68. Excision of duplication cyst	2	2	0	0
69. Operations for NEC	3	8	2	0
70. Appendectomy	3	4	5	5
71. Appendicular abscess – drainage.	2	2	3	3
72. Pull through for Hirschsprung's disease: Duhamel, Soave, Swenson's	3	10	1	1
73. Rectal biopsy	3	5	4	4
74. Anorectal myectomy	1	2	0	0
75. Pull through for ARM (RVF, RUF)	3	12	3	1
76. Re do pull through for ARM	1	1	0	0
77. Anoplasty	2	2	2	1
78. Anal transposition	1	2	0	0
79. Colonic resections	2	5	3	0
80. Per op cholangiogram	3	5	2	0
81. Kasai's procedure.	3	5	1	0
82. Operations for choledochal cyst	2	3	1	0
83. Cholecystectomy	1	2	1	0
84. Secondary suturing (burst abdomen)	2	3	2	1
85. Liver biopsy (percutaneous)	2	3	2	1
86. Liver abscess drainage	2	2	2	0
87. Operation for liver hydatid	2	3	1	0
88. Hepatic resection	1	1	0	0
89. Operation for portal hypertension: Devascularization, Splenectomy, Portosystemic shunts.				
90. Operation for pancreatic pseudocysts.	2	3	0	0
91. Pancreatic resection	1	1	0	0
92. Pancreatic enteric anastomosis.	1	2	0	0
GENITO URINARY SURGERY				
93. Nephrectomy				
94. Tumours	2	3	0	0

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95. Others	2	3	1	0
96. Partial nephrectomy	1	1	0	0
97. Cystoscopy, fulguration of PUV.	3	5	1	0
98. Cystoscopy	3	5	2	1
99. Retrograde pyelography	1	2	0	0
100. Nephrostomy-Percutaneous, Open	2	2	1	0
101. Pyeloplasty	2	3	1	1
102. Nephroureterectomy	2	3	2	0
103. Ureterocele incision	2	2	0	0
104. Suprapubic cystostomy	2	3	3	2
105. Vesicostomy: Formation, Closure	2	3	3	1
106. Ureterostomy —Formation, Loop y,Closure	2	2	1	0
107. Extrophy repair (turn in)	2	2	0	0
108. Bladder augmentation	2	3	0	0
109. Mitrofanoff procedure	2	3	0	0
110. Ureteric reimplantation	3	5	1	1
111. Bladder neck repair	2	2	0	0
112. Ureterosigmoidostomy	2	2	0	0
113. Colonic conduit	1	2	0	0
114. Epispadias repair	2	2	0	0
115. Hypospadias repair- Single stage, Staged	3	10	2	1
116. Meatotomy/meatoplasty	2	3	3	1
117. Urethral fistula repair	2	3	1	0
118. Urethral calibration / dilatation	3	3	3	5
119. Operation for calculus: Nephrolithotomy	1	1	1	0
120. Pyelolithotomy	2	3	2	1
121. Ureterolithotomy	2	2	1	0
122. Cystolithotomy	3	3	3	1
123. Circumcision	2	3	5	10
124. Dorsal Slit	2	2	2	2
OPERATION FOR INTERSEX DISORDER				
1. Correction of penoscrotal transposition	2	1	0	0
2. Genitoscopy	2	3	1	0
3. Gonadal biopsy	2	2	0	0
4. Gonadectomy	2	2	1	0
5. Testicular prosthesis placement	1	1	0	0
6. Genital reconstruction	2	3	0	0
NEUROSURGERY				
1. Repair of encephalocele	2	2	1	1
2. Repair of spina bifida	3	5	3	1
3. Repair of occult spinal dysraphism	2	3	0	0
4. Ventriculoperitoneal shunts.	3	4	3	1
5. VP shunt revision	2	3	2	1
6. External ventricular drainage	2	2	1	0



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MISCELLANEOUS					
7.	Skin grafting				
8.	Partial thickness	3	5	5	5
9.	Full thickness	2	2	1	0
10.	Flap cover	2	4	1	0
11.	Excision of vascular anomalies				
12.	Venous	2	2	1	0
13.	Lymphatic	3	4	1	0
14.	Fasciotomy	3	3	3	1
15.	Contracture release	2	2	0	0
16.	Vascular anastomosis	2	3	0	0
17.	Arterial line placement	2	2	2	0
18.	Central venous line insertion- Percutaneous	3	5	5	2
19.	Open biopsy	2	2	3	5
20.	Muscle biopsy	2	2	2	5
21.	Nerve biopsy	1	1	1	2
22.	Umbilical vein cannulation	2	2	2	5
23.	PD catheter insertion	2	3	2	1
24.	HD catheter insertion	2	3	2	1
25.	Accessory digit excision	1	2	3	3



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Annexure-3

Sample of monthly schedules

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Clinical discussion by year graduates	Case Final post OT day	Subject Seminar/ Journal Club/ Recent Advances	OT day	Log book review, ALC	OT day



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ANNEXURE – 4
DEPARTMENT OF PAEDIATRIC SURGERY

POLICY FOR OUTSIDE PG POSTINGS

Final year post graduates will be posted for

- ❖ One month for Paediatric Urology Speciality
- ❖ One month for Paediatric onco surgery
- ❖ One month for NICU, PICU and robotic surgery



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LOG BOOK

Admission Year:

College:

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Academic presentations made by the student

Admission Year:

College:

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LOG BOOK

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

Student's signature

Guide's Signature



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Course Specifications M.Ch Paediatric Surgery

2022 onwards

Course Code: MCHC517A



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Course Specifications

Course Title	Basic Sciences in Paediatric Surgery, Trauma, Transplantation.
Course Code	MCHC517A
Department	Paediatric Surgery
Faculty	Ramaiah Medical College

Course summary:

This course is designed in such a way that student will master the basics of paediatric surgery like management of neonatal with congenital anomalies, diagnostic procedures in children and management of children and neonates in the ICU.

Course Outcomes:

CO 1: Student should be well versed with common paediatric surgical conditions. Should have basic knowledge about neonatal physiology, pathophysiology of acute paediatric emergencies.

CO 2: The student should demonstrate integrity, accountability, respect, compassion and dedicated patient care, commitment to excellence, continuous professional development and ethical principles relating to research conduct and publication as applicable to all the specific courses

Course Content:**GENERAL PAEDIATRIC SURGERY INCLUDING BASIC SCIENCES**

1. Medical Genetics.
2. Antenatal diagnosis and fetal therapy
3. Developmental and transitional physiology of the respiratory, cardiovascular and renal systems
4. Neonatal physiology and assessment of the surgical neonate.
5. Neonatal sepsis
6. Nutrition – enteral, parenteral
7. Vascular access
8. Paediatric analgesia and anaesthesia.
9. Biomedical ethics and legal issues in Paediatric surgical practice.
10. Organisation of a Paediatric surgical unit
11. HIV/AIDS in children

TRAUMA

1. Paediatric trauma – general principles.
2. Thoracic, abdominal, genitourinary, central nervous system trauma (detail)
3. Soft tissue and envenomation injuries
4. Musculoskeletal and vascular trauma
5. Burns
6. Child abuse.

TRANSPLANTATION

1. General principles
2. Kidney and liver transplantation (details)



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Course Mapping (CO-PO-PSO Mapping)

Course Code and Name	Course outcomes	Program Outcomes				Program Specific Outcomes					
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
MCHC517A Basic Sciences in Paediatric Surgery, trauma, Transplantation.											
	CO 1	3	3	3	2	3	2	2	3	2	3
	CO 2	2	3	3	2	3	3	3	3	3	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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Course Specifications M.Ch Paediatric Surgery

2022 onwards

Course Code: MCHC518A

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Course Specifications

Course Title	Regional Paediatric Surgery - 1
Course Code	MCHC518A
Department	Pediatric Surgery
Faculty	Ramaiah Medical College

Course Summary:

This course is designed in such a way that the student will master the basic management children with general paediatric surgery problems and neonates with congenital anomalies.

Course Outcomes:

CO 1: Should know standard operating procedures for common paediatric surgical conditions:

CO 2: Should be well versed about neonatal and paediatric physiology and anatomy.

CO 3: Should have a basic knowledge about basic research methodology so that student can independently conduct fundamental and applicable research in accordance with instructions as accepted by international standards.

CO 4: Should have a knowledge about common acute paediatric surgical emergencies and their management.

Course Content:HEAD AND NECK

1. Craniofacial anomalies including congenital malformations of external ear.
2. Cleft lip and palate
3. Disorders of the upper airway and oral cavity.
4. Salivary glands
5. Disorders of lymph nodes.
6. Thyroid and parathyroid gland
7. Cysts and sinuses of the neck
8. Torticollis

THORAX

1. Congenital chest wall deformities.
2. Disorders of the breast.
3. Diaphragmatic hernia and eventration
4. Mediastinal mass lesions.
5. Endoscopy of the upper aerodigestive tract.
6. Congenital tracheal and broncho pulmonary/ foregut malformations.
7. Infective pleuropulmonary condition.
8. Congenital esophageal anomalies
9. Esophageal motility disorders
10. Esophageal rupture, stricture, perforation.
11. Esophageal replacement.



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Course Mapping (CO-PO-PSO Mapping)

Course Code and Name	Course outcomes	Program Outcomes				Program Specific Outcomes					
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
MCHC518A Regional Pediatric Surgery - 1	CO 1	3	3	3	3	3	2	3	2	3	3
	CO 2	3	3	3	3	3	3	3	3	2	3
	CO 3	3	3	2	3	2	3	3	3	2	3
	CO 4	3	3	3	3	3	3	3	2	2	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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Course Specifications M.Ch Paediatric Surgery

2022 onwards

Course Code: MCHC519A



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Course Specifications

Course Title	Regional Pediatric Surgery - 2
Course Code	MCHC519A
Department	Paediatric Surgery
Faculty	Ramaiah Medical College

Course Summary:

The course is designed in such a way that the student will master multidisciplinary management of children and neonates with complex urogenital anomalies, oncological conditions, thoracic anomalies.

Course Outcomes:

CO1: Be familiar with SOP followed for paediatric trauma with special emphasis to solid organ injury and its acute management and be able to recommend specific investigations like USG scans, CECT scans.

CO2: Be able to possess the knowledge of exploratory and microsurgical principles and its application to the clinical situations like chest and abdominal penetrating injuries.

CO3: Be conversant with paediatric surgical apparatus and its principles of working, its maintenance of instruments/ apparatus like laparoscopic instruments, paediatric urological instruments and operating microscopes.

CO4: To be able to take decision and perform minor procedures in emergency like torsion testis, torsion ovary, acute appendicitis, malrotation of intestine, retrieval of foreign body from aero digestive tract and preparation for surgery of the major procedures like reconstructive paediatric urology, thoracic surgeries, neonatal surgeries and tumour excisions. Coordinating with other specialities like Paediatrics, Paediatric Nephrology, Neonatology, orthopaedics, surgical oncology and Medical oncology.

CO5: Should demonstrate knowledge of different methods of teaching-learning and assessments and should be independently able to teach and engage undergraduate students, paramedical staff and their own peers in the form of presenting seminars, journal clubs and clinicopathological and CMEs as applicable to all the specific courses.

Course Content:**ABDOMEN**

1. Umbilical disorders and abdominal wall defects.
2. Inguinal hernias and hydroceles
3. Testicular maldescent, torsion
4. Hypertrophic pyloric stenosis.
5. Duodenal atresia, annular pancreas.
6. Jejunoileal atresia and stenosis
7. Meconium ileus
8. Meckel's diverticulum
9. Intussusception.



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10. Disorder of midgut rotation.
11. Short bowel syndrome
12. Gastrointestinal endoscopy and laparoscopy.
13. Gastrointestinal bleeding
14. Gastrointestinal duplications.
15. Mesenteric and omental cysts
16. Ascitis
17. Polypoid disease of the GIT
18. Necrotising enterocolitis.
19. Intestinal stomas
20. Primary peritonitis.
21. Inflammatory bowel disease in children.
22. Colonic atresia and functional obstruction.
23. Appendicitis
24. Hirschsprung's disease, neuromuscular disorders of intestines
25. Anorectal malformations.
26. Colonic and rectal tumours
27. Neonatal/Infantile obstructive cholangiopathy
28. Congenital biliary dilatation.
29. Infective and inflammatory hepatobiliary disorders.
30. Benign liver tumours
31. Portal hypertension.
32. Disorders of the pancreas
33. Splenectomy and post splenectomy sepsis.
34. Adrenal gland.

GENITOURINARY AND RELATED DISORDERS.

1. Renal agenesis, dysplasia, cystic disease, ectopia.
2. Pelvic ureteral junction obstruction.
3. Vesicoureteric reflux
4. Infective and inflammatory renal disorder.
5. Congenital ureteric anomalies.
6. Prune belly syndrome
7. Urinary diversion and undiversion, bladder augmentation
8. Disorders of bladder function.
9. Structural bladder disorders
10. Extrophy – epispadias complex.
11. Hypospadias.
12. Anomalies of the external genitalia
13. Intersexual disorders.
14. Abnormalities of the female genital tract.

SPECIAL PAEDIATRIC SURGERY

1. Spina bifida
2. Hydrocephalus
3. Congenital heart disease
4. Congenital orthopaedic deformities
5. Amputation, bone and joint infections
6. Conjoined twins
7. Hemangiomas & vascular malformations.

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Course Mapping (CO-PO-PSO Mapping)

Course Code and Name	Course Outcomes	Program Outcomes				Program Specific Outcomes					
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
MCHC519A Regional Pediatric Surgery - 2	CO 1	3	3	3	3	3	3	3	3	2	3
	CO 2	3	3	2	3	3	3	3	3	2	3
	CO 3	3	3	2	3	3	3	3	3	3	3
	CO 4	3	3	2	3	3	3	3	3	2	3
	CO 5	2	3	3	2	3	3	3	3	3	2
	3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution										



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Course Specifications M.Ch Paediatric Surgery

2022 onwards

Course Code: MCHC520A



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Course Specifications

Course Title	Recent advances in Pediatric surgery relevant to Surgical Oncology
Course Code	MCHC520A
Department	Paediatric Surgery
Faculty	Ramaiah Medical College

Course Summary:

The course is designed in such a way that the student will master recent developments in Paediatric Surgery including recent advances in care of children with oncological conditions, insertion of lines for administration of chemotherapy and follow up care of these patients.

Course Outcomes:

CO 1: Should be conversant with the principles of Paediatric surgical oncology and Line insertions for chemotherapy (Chemoport, Hickman line, PICC line)

CO 2: Student should be conversant with photography, record keeping and data management.

Course Content:**PAEDIATRIC ONCOLOGY**

1. General principles
2. Wilm's tumor, Neuroblastoma, Liver tumours, Rhabdomyosarcoma, Teratomas and Germ cell tumours and Gonadal tumours – (details)
3. Other tumour of childhood (outline)- Lymphomas, Bone tumours, Brain tumours, Retinoblastoma.



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Course Mapping (CO-PO-PSO Mapping)

Course Code and Name	Course outcomes	Program Outcomes				Program Specific Outcomes					
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
MCHC520A Recent advances in Pediatric surgery relevant to Surgical Oncology	CO 1	3	3	2	3	3	3	3	3	2	3
	CO 2	3	3	3	3	3	2	2	3	3	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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Course Materials:RECOMMENDED BOOKS AND JOURNALSEssential Books

1. Paediatric Surgery (Fifth edition, 1998).
2. Editors- O'Neill JA, Rowe MI, Grosfeld JL, Fonkalsrud EW, Corn AG.
3. Publisher- Mosby.
4. Clinical Paediatric Urology (Third edition, 1992).
5. Editors- Kelalis PP, King LR, Belman AB.
6. Publisher- W.B. Saunders Co.
7. Manual of Neonatal care (Fourth edition, 1998)
8. Cloherty JP, Stark AR.
9. Publisher-Lippincott Raven
10. Paediatric Oncology (Fourth edition, 2002).
11. Editors- Pizzo PA, Poplack DG.
12. Publisher-Lippincott, Williams and Wilkins.
13. Nelson Textbook of Paediatric (Sixteenth edition, 2000).
14. Editors-Behrman RE, Kliegman RM, Jenson HB.
15. Publisher- W.B. Saunders Co.
16. Rob and Smith's Operative surgery -Paediatric Surgery (Fifth edition, 1995).
17. Editors-Spitz L, Coran AG.
18. Publisher-Chapman and Hall Medical
19. An introduction to biostatistics – a manual for students in health care (Second Edition, 1983)
20. Editors- Sunder Rao PSS, Jesudian G, Richard J
Publisher – Department of Biostatistics, CMC, Vellore.

Optional

1. Embryology for surgeons
2. Editors-Gray SW, Skandalakis JE.
3. W.B.Saunders and Co.
4. Abdominal surgery of infancy and childhood (First edition, 1996).
5. Editors-Donnellan WL, Burrington JD, Kimura K, Schafer JC, White JJ.
6. Publisher- Harwood academic publishers.
7. Adult and Paediatric urology (Fourth edition, 2002).
8. Editors-Gillenwater JY, Grayhack HT, Howard SS, Mitchell ME.
9. Publisher- Lippincott, Williams and Wilkins.
10. Newborn surgery (First edition, 1996).
11. Editor-Prem Puri.
12. Publisher-Butterworths, Heinemann.
13. Surgery of the Newborn (First edition, 1994)
14. Editor-Freeman NV, Burge DM, Griffiths DM, Malone PSJ.
15. Publisher- Churchill Livingstone.
16. Surgery of liver, bile ducts and pancreas disease in children (Second edition, 2002)
17. Editors-Howard ER, Stringer MD, Columbani PM.
18. Publisher- Arnold.
19. Caffey's Paediatric X-ray diagnosis (Ninth edition, 1993)
20. Editors-Silvermann FN, Kuhn JP.
21. Publisher- Mosby.

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22. Paediatric pathology (Second edition, 2001)
23. Editors-Stocker JT, Dehner LP.
24. Publisher- Lippincott, Williams and Wilkin
25. Epidemiology, biostatistics and preventive medicine. (Second Edition, 2001)
26. Editor – Jekel JF, Katz DL, Elmore JG,
27. Publisher – WB Saunders Co.,

Journals

Essential

- Indian Journal of Paediatric Surgery
- Journal of Paediatric Surgery
- Paediatric Surgery International
- European Journal of Paediatric Surgery
- Seminars in Paediatric Surgery
- British Journal of Urology International
- Journal of Urology
- Indian Journal of Paediatrics

Optional

- The Journal of Paediatric
- Paediatric
- Paediatric Clinics of North America

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