



स्वास्थ्य एवं परिवार कल्याण मंत्रालय के तहत सांविधिक निकाय
Statutory Body under the Ministry of Health & Family Welfare

F.No. 11-1/2024-INC (VIII)

Dated: **23 OCT 2024**

**Draft Notification of Nurse Practitioner in Anesthesia (NPA) -Postgraduate Residency
Program**

General Public is hereby informed that the Indian Nursing Council has drafted “**Nurse Practitioner in Anesthesia (NPA) -Postgraduate Residency Program**” Accordingly, draft notification has been prepared and is attached for comments of the General Public/Stakeholders. Comments may be furnished via email secy.inc@gov.in within 15 (Fifteen) days of uploading of this notice.

Yours faithfully,

Encl: As above

**Lt Col (Dr) Sarvjeet Kaur
Secretary, INC**

**THE GAZETTE OF INDIA EXTRAORDINARY
PART III—SECTION 4
PUBLISHED BY AUTHORITY
(TO BE GAZETTED)**

**INDIAN NURSING COUNCIL
8th Floor, NBCC Centre, Plot No. 2, Community Centre
Okhla Phase-1, New Delhi-110020**

NOTIFICATION

New Delhi, Dated _____, 2024

**INDIAN NURSING COUNCIL {NURSE PRACTITIONER IN ANESTHESIA (NPA) -
POSTGRADUATE RESIDENCY PROGRAM} REGULATIONS, 2024**

F.No. 11-1/2024-INC (IX):—In exercise of the powers conferred by sub-section (1) of Section 16 of Indian Nursing Council Act, 1947 (XLVIII of 1947), as amended from time to time, the Indian Nursing Council hereby makes the following regulations, namely:—

1. SHORT TITLE AND COMMENCEMENT

- i. These Regulations may be called the **Indian Nursing Council {Nurse Practitioner in Anesthesia (NPA) - Postgraduate Residency Program} Regulations, 2024.**
- ii. These shall come into force on the date of notification of the same in the Official Gazette of India.

2. DEFINITIONS

In these Regulations, unless the context otherwise requires,

- i. ‘the Act’ means the Indian Nursing Council Act, 1947 (XLVIII of 1947) as amended from time to time;
- ii. ‘the Council’ means the Indian Nursing Council constituted under the Act;
- iii. ‘SNRC’ means the State Nurse and Midwives Registration Council, by whichever name constituted, by the respective State Governments;
- iv. ‘RN & RM’ means a Registered Nurse and Registered Midwife (RN & RM) and denotes a nurse who has completed successfully, recognised Bachelor of Nursing (B.Sc. Nursing) or Diploma in General Nursing and Midwifery (GNM) course, as prescribed by the Council and is registered in a SNRC as Registered Nurse and Registered Midwife;
- v. ‘Nurses Registration & Tracking System (NRTS)’ means a system developed by the Council and software developed in association with National Informatics Centre (NIC), Government of India, and hosted by NIC for the purpose of maintenance and operation of the Indian Nurses Register. It has standardised forms for collection of the data of Registered Nurse and Registered Midwife (RN & RM)/Registered Auxiliary Nurse Midwife (RANM)/Registered Lady Health Visitor (RLHV) upon Aadhar based biometric authentication;
- vi. ‘NUID’ is the Nurses Unique Identification Number given to the registrants in the NRTS system;
- vii. ‘General Nursing and Midwifery (GNM)’ means Diploma in General Nursing and Midwifery qualification recognized by the Council under Section 10 of the Act and included in Part-I of the Schedule of the Act.

NURSE PRACTITIONER IN ANESTHESIA (NPA) - POSTGRADUATE RESIDENCY PROGRAM

I. Introduction and Background

In India, reshaping health systems in all dimensions of health has been recognized as an important need in the National Health Policy, 2017 (NHP, 2017). It emphasizes human resource development in the areas of education and training alongside regulation and legislation. It is highly significant that the health care professionals require advanced educational and clinical training in health care settings for specialized services. The Government of India recognizes significant expansion in all health care settings both in public and private sectors. There is a felt need for specialist nurses and nurse practitioners with advanced preparation to support healthcare services in our country.

Nurse Practitioners (NPs) will be able to meet this demand provided they are well trained and empowered to practice in the area of need. With establishment of new cadres in the center and state level, master level prepared NPs will be able to provide cost effective, competent, safe and quality driven specialized nursing care to patients in a variety of relevant settings in India. NP in critical care/acute care, oncology, emergency care, neuro-care,

cardiovascular care, anesthesia and other specialties can be prepared to function in all levels of relevant settings. Rigorous educational training will enable them to assess and participate in managing patients undergoing various procedures and surgeries both for prevention of complications and promotion of health.

A curricular structure/framework is proposed by the Council towards preparation of Nurse Practitioner in Anesthesia (NPA) at master's level. The special feature of this program is that it is a clinical residency program emphasizing a strong clinical component with 15% theoretical instruction and 85% practicum. Competency based training is the major approach and NP education is based on competencies adapted from National Organization of Nurse Practitioner Faculties (NONPF) competencies (2022), International Council of Nurses (ICN, 2021), American Association of Colleges of Nursing (2021), American Association of Nurse Anesthesiology (AANA, 2023). Every course is based on the achievement of competencies.

The provision of adequate surgical cover is a prerequisite to accomplishing local and global health goals {Lancet Commission on Global Surgery (LCoGS), 2019}. A large section of people seeking surgical care cannot afford the financial burden of medical treatment. About 66% of patients in low- and lower-middle-income countries do not have access to primary surgical care. Safe anesthetic care is essential to ensure safe outcomes of surgery. Five billion people across the world have no access to safe anesthetic care. Law T.J. *et al.* (2019) spell out various issues and barriers in the path to achieve safe and accessible anesthesia care.

The LCoGS suggests an average minimum threshold of 5000 surgical procedures per 100,000 population by 2030. Sufficient trained anesthesia care providers are needed to cater for such large surgical volumes. And the workforce gap must be filled up by well-trained non-physician anesthesia care providers (NPAPs).

Narrowing the gap becomes the priority according to the Sustainable Development Goals, 2030, that focuses on Global Health Equity. The Nurse Practitioner in Anesthesia (NPA) Program is the way forward to close down the gap. The NPA Program is intended to train registered B.Sc. Nurses at the master's level to provide peri-anesthesia care to patients and to carry out critical care procedures in various anesthesia relevant settings. NPA focuses on assessing patients and their medical fitness for anesthesia and surgery, preventing, and treating acute complications if any and stabilizing them during the peri-anesthesia period.

These NPAs are required to practice in the operating rooms, pre anesthesia clinics, post anesthesia recovery rooms, ICUs, outpatient and in patient surgery units, emergency rooms, labor and delivery rooms, endoscopy suites, radiological centers, psychiatric units, including Community Health Centers (CHCs).

The program consists of various courses of study that are based on strong scientific foundations including evidenced based practice and management of complex health systems. These are built upon theoretical and practice competencies of B.Sc. On completion of the program and registration with the respective SNRC, they are permitted to practice all competencies listed in the logbook of the Council syllabus. They will be able to provide general, regional and local anesthesia with supervision by anesthesiologists. They will also be able to administer drugs relevant to the scope of anesthesia care, order diagnostic tests, procedures, medical equipment, and therapies as per institutional protocols/standing orders. They will be permitted to manage post-operative patients in the Post Anesthesia Care Unit (PACU) and discharge them based on specific criteria. The NPAs when exercising this authority are accountable for the following competencies:

- a) Preanesthetic assessment
- b) Preparing, administering and terminating regional anesthesia with supervision
- c) Patient safety
- d) Monitoring vital signs
- e) Handling of equipment
- f) Basic and advanced cardiac life support
- g) Post operative care
- h) Pain management
- i) Risk prevention
- j) Documentation
- k) Health advocacy
- l) Professionalism

The said postgraduate degree will be registered as an additional qualification by the SNRC.

Vision

Nurse Practitioner in Anesthesia (NPA) program seeks to cater to the surgical, anesthesia, and obstetrics needs of underserved population, thereby minimizing the gap in health care delivery system and promoting the health profile of the country.

Philosophy

The Council believes that there is a great need to establish a postgraduate program titled Nurse Practitioner in Anesthesia to meet the challenges and demands of health care services in India which is reflected in the National Health Policy, 2017 and to provide safe, quality care to patients undergoing anesthesia in specific health care settings.

The Council believes that postgraduates from a residency program will focus on strong clinical component, using competency-based training. They will be able to demonstrate clinical competence based on sound theoretical and evidence-based knowledge. The teaching-learning approach will concentrate on adult learning principles, competency-based education, collaborative learning, preceptorship, experiential learning, simulation based learning and self-directed learning. Education providers/preceptors/mentors can be operating room nurses and anesthesiologists. They will be subject experts and will possess high competence.

The Council also believes that a variety of educational strategies can be used in the clinical settings to address the deficit of qualified personnel. It is hoped to facilitate developing policies towards registration/licensure and create cadre positions for appropriate placement of these postgraduate Nurse Practitioners in Anesthesia.

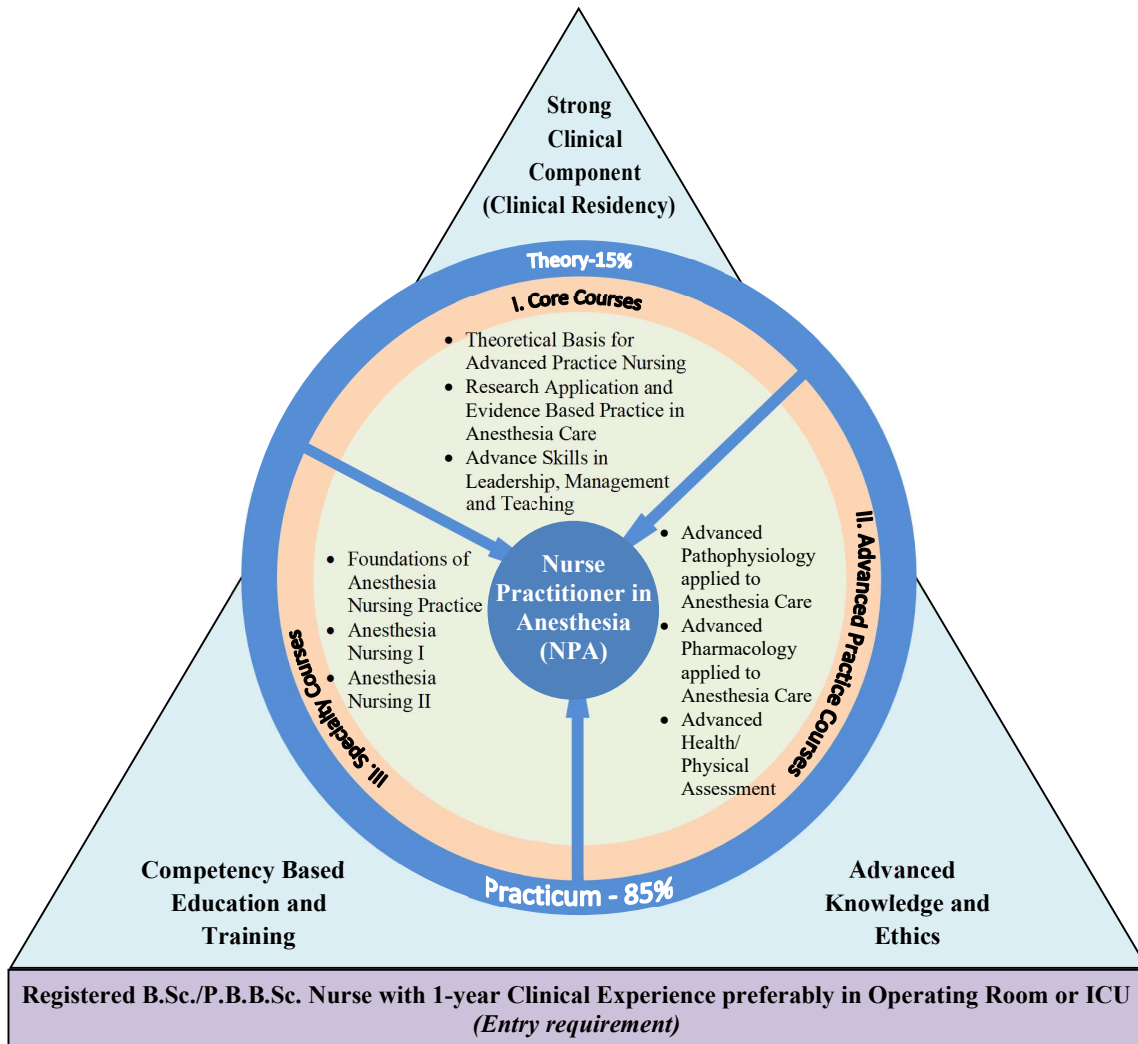


Figure 1. Nurse Practitioner in Anesthesia (NPA) - An Educational Curricular Framework

II. Program Description

This program is designed to assist students in developing expertise and in-depth understanding in the field of anesthesia nursing. It will enable the student to function as Nurse Practitioner in Anesthesia. It will further enable the student to function as educator, manager and researcher in the field of anesthesia nursing.

The NPA program is a Post Graduate Nursing residency program with a focus on competency based training. The duration is of two years with the curriculum consisting of theory that includes core courses, advanced practice courses and clinical courses besides clinical practicum which is a major component (Refer Curricular framework).

III. Aim

The Nurse Practitioner in Anesthesia (NPA) Program prepares registered B.Sc. nurses for advanced practice roles as clinical experts, educators and consultants leading to M.Sc. Nursing (Nurse Practitioner in Anesthesia)

IV. Objectives

On completion of the program, the NPA will be able to:

1. Assume responsibility in preanesthetic assessment of patients in various health care settings.
2. Demonstrate clinical competence in preparing, administering, and terminating anesthesia with supervision.
3. Assume responsibility for patient safety throughout the peri anesthesia period.
4. Demonstrates skill in monitoring vital signs and interpreting values.
5. Describe the functioning of various equipment used in anesthesia.
6. Assume responsibility in managing patients in anesthesia relevant settings to stabilize and restore patient's health either independently or collaboratively with the team.
7. Manage pain and prevent peri-anesthesia related complications.
8. Liaise between patients, family and relevant team.

V. Minimum requirements to start the Nurse Practitioner in Anesthesia (NPA) Program

The institution must accept the accountability for the NPA program and its students and offer the program congruent with the Council standards. It must fulfill the following requirements -

1. Essentiality Certificate

- a. Any institution who wishes to start Nurse Practitioner in Anesthesia program shall obtain an Essentiality Certificate/Government Order from the State.
- b. The following institutions are exempted from obtaining an Essentiality Certificate -
 - (i) Institutions/Universities already offering B.Sc. Nursing or M.Sc. Nursing programs and found suitable by the Council under Sections 13 and 14 of the Act;
 - (ii) Institutions/Universities offering MBBS/DNB programs.

2. Hospital

- a. The institute should have a parent hospital/tertiary care center with a minimum of 200 beds and with fully functional Operating Rooms & ICUs.
- b. It is preferable to have a medical college/nursing college attached to the parent hospital.

3. Operating Rooms & ICU Beds

The hospital should have a minimum of 10 Operating Beds/Tables with a minimum of two tables for major surgeries and corresponding ICUs

4. Operating Room staffing

- a. The Operating Room complex should have a Charge Nurse/Nurse Manager preferably with B.Sc. Nursing or M.Sc. Nursing qualification.
- b. For Major OR: 2 Staff nurses for every functional operation table.
- c. For Minor OR: 1 Staff nurse for every functional operation table.
- d. For Post Anesthesia Care Unit (PACU), the nurse patient ratio should be 1:1 for pediatric patients and 1:2 for adult patients for every shift.
- e. There must be provision of additional 40-45% trained nursing staff towards leave reserve.

5. Faculty/Staff resources

a. Clinical area:

- i. *Nursing Preceptor*: Full-time qualified GNM with 6 years of experience in Operation Theatre (preferably with Post Basic Diploma in Operating Room Nursing and Management) or B.Sc. Nursing with 2 years of experience in Operation Theatre or M.Sc. (Specialty-Medical Surgical Nursing) with one year experience in Operation Theatre.
- ii. *Medical Preceptor*: DA/MD Anesthesiologist/MD Intensivist with 2 years of experience
- iii. *Preceptor student ratio*: Nursing 1:10, Medical 1:10 (every student must have a medical and nursing preceptor)

b. Teaching faculty:

- i. Professor/Associate Professor: 1 {Teaching experience: 5 years post PG-M.Sc. (Specialty-Medical Surgical Nursing/NPA)} (One faculty for every 10 students)
- ii. Assistant Professor: 1 {Teaching experience: 3 years post M.Sc. Nursing}
- iii. The above faculty shall perform dual role or be a senior nurse with M.Sc. Nursing in the same Specialty with the required qualification and experience, employed in OT/ICU in the same hospital
- iv. Guest Lecturers for Pharmacology, Pathophysiology, Critical Care

6. Physical and learning resources at hospital/college

- a. One classroom/conference room at the clinical area
- b. Skill lab for simulated learning (hospital/college)
- c. Library and computer facilities with access to online journal
- d. E-learning facilities

7. List of equipment for Operating Rooms and ICU (enclosed in Appendix-1)

8. Student Recruitment/Admission Requirements

- a. The applicants must be a registered B.Sc./P.B.B.Sc. nurse with a minimum of one-year clinical experience, in Operation Theatres/ICUs prior to enrollment.
- b. Must have undergone the B.Sc. Nursing in an institution found suitable by the Council and have been registered in any SNRC.
- c. Must have scored not less than 55% aggregate marks in the B.Sc. Nursing program.
- d. Must be physically fit.

Number of candidates to be recruited: 1 Candidate for 2 Major Operating Tables.

Salary

1. In-service candidates (candidates who have been working in the same institution) will get regular salary.
2. Stipend/salary for the other candidates must be provided as per the salary structure of the hospital where the course is conducted

VI. EXAMINATION REGULATIONS

Eligibility for appearing for the examination

Attendance: Minimum 80% for theory and practical before appearing for final University examination but must complete 100% in practical before the award of degree.

There is no minimum cut off for the internal assessment marks, as internal and external marks are added together for declaring pass.

Examining and Degree Awarding Authority: Respective University

Declaration of Results

The candidate is declared to have passed the exam if the score is 60% and above. This score is the aggregate of both internal and external University examination in theory and practical in every course/subject and less than 60% is fail.

For calculating the rank, the aggregate of the two years' marks will be considered.

If a candidate fails in theory or practical, he/she must reappear for the paper in which he/she has failed.

Rank will not be declared for candidates who fail in any subject. Maximum period to complete the program is 4 years.

Practical Examination

OSCE type of examination is to be conducted alongside viva - Refer OSCE Guidelines found in **Appendix-2**.

Maximum number of students per day will be 10 students.

Examination should be held in the clinical area only.

The team of practical examiners will include one internal examiner {M.Sc. Nursing faculty with two years of experience in teaching the Nurse Practitioner in Anesthesia program/M.Sc. faculty (Medical Surgical Nursing preferable) with 5 years of post PG experience}, one external examiner (same as above) and one anesthesiologist as internal examiner who should be preceptor for NPA program.

Dissertation/EBP Project

Research Guides: Main guide: Nursing faculty (3 years post PG experience) teaching NPA program

Co-guide: Medical preceptor

Submission of Research Proposal: 6 to 9 months after date of admission in the first year

Guide Student Ratio: 1:5

Research Committee: There shall be a separate research committee in the college/hospital to guide and oversee the progress of the research (minimum of 5 members with principal or CNO who is M.Sc. Nursing qualified).

Ethical Clearance: It must be obtained by the Institutional Review Board/Hospital Ethics Committee since it involves clinical research.

Topic Selection: The topic should be relevant to anesthesia nursing that will add knowledge or evidence for nursing intervention. The research should be conducted in OR/PACU/ICU settings.

Data Collection: 7 weeks are allotted for data collection, which can be integrated during clinical experience after 6 months in first year and before 6 months in second year.

Writing the Research Report: 6 to 9 months in second year.

Submission of Dissertation Final: 3 months before completion of the second year.

Dissertation Examination

Internal Assessment: Viva & dissertation report = 50 marks

University Examination: Viva & dissertation report = 50 marks (Marking guide used for other M.Sc. Nursing specialties can be used for evaluation)

*EBP project can be conducted in place of dissertation and report submitted for evaluation.

VII. Assessment (Formative and Summative)

- Quiz
 - Seminar
 - Written assignments/Term papers
 - Case/Clinical presentation
 - Clinical or care pathway/Case study report
 - Clinical performance evaluation
 - Logbook (Procedural competency list and clinical requirements) countersigned by the medical/nursing faculty preceptor
 - Objective Structured Clinical Examination (OSCE)
 - Test papers
 - Final examination
- (Refer **Appendix-2** for Assessment Guidelines)

Scheme of Final Examination

S.No.	Title	Theory %			Practical %		
		Hours	Internal	External	Hours	Internal	External
Ist year							
Core Courses							
1	Theoretical Basis for Advanced Practice Nursing	2 hours	50				
2	Research Application and Evidence Based Practice in Anesthesia Care	3 hours	30	70			
3	Advanced Skills in Leadership, Management and Teaching	3 hours	30	70			
Advanced Practice Courses							
4	Advanced Pathophysiology and Pharmacology applied to Anesthesia Care	3 hours	30	70			
5	Advanced Health/Physical Assessment	3 hours	30	70		50	50
IInd year							
Specialty Courses							
1	Foundations of Anesthesia Nursing Practice	3 hours	30	70		100	100
2	Anesthesia Nursing I	3 hours	30	70		100	100
3	Anesthesia Nursing II	3 hours	30	70		100	100
4	Dissertation and Viva					50	50

VIII. Courses of Instruction

		Theory (hours)	Lab/Skill Lab (hours)	Clinical (hours)
Ist year				
Core Courses				
I	Theoretical Basis for Advanced Practice Nursing	40		
II	Research Application and Evidence Based Practice in Anesthesia Care	56	24	336 (7 weeks)
III	Advanced Skills in Leadership, Management and Teaching	56	24	192 (4 weeks)
Advanced Practice Courses				
IV	Advanced Pathophysiology applied to Anesthesia Care	60		336 (7 weeks)
V	Advanced Pharmacology applied to Anesthesia Care	54		336 (7 weeks)
VI	Advanced Health/Physical Assessment	70	48	576 (12 weeks)
	TOTAL = 2208 hours	336 (7 weeks)	96 (2 weeks)	1776 (37 weeks)
IInd year				
Specialty Courses				
VII	Foundations of Anesthesia Nursing Practice	96	48	576 (12 weeks)
VIII	Anesthesia Nursing I	96	48	576 (12 weeks)
IX	Anesthesia Nursing II	96	48	624 (13 weeks)
	TOTAL = 2208 hours	288 (6 weeks)	144 (3 weeks)	1776 (37 weeks)

No. of weeks available in a year = 52 - 6 (Annual leave, Casual leave, Sick leave = 6 weeks) = 46 weeks × 48 hours = 2208 hours

Two years = 4416 hours (Examination during clinical posting)

Instructional hours: Theory = 624 hours, Skill Lab = 240 hours, Clinical = 3552 hours

TOTAL = 4416 hours

Ist year: 336-96-1776 hours (Theory-Skill Lab-Clinical) [Theory = 15%, Practicum (Skill Lab & Clinical) = 85%]

IInd year: 288-144-1776 hours (Theory-Skill Lab-Clinical) [Theory = 15%, Practicum = 85%]

Ist year = 46 weeks/2208 hours (46×48 hours) (Theory + Lab: 7.5 hours per week for 44 weeks = 330/336+96 hours*)

*Theory + Lab = 96 hours can be given for 2 weeks in the form of introductory block classes and workshops

IInd year = 46 weeks/2208 hours (46×48 hours) (Theory + Lab: 8.5 hours per week for 45 weeks = 384+48 hours) (1 week Block classes = 48 hours)

CLINICAL PRACTICE

A. Clinical Residency experience: A minimum of 48 hours/week is prescribed, however, it is flexible with different shifts and OFF followed by ON CALL duty.

B. 8 hours duty with one day OFF in a week and ON CALL duty one per week.

Clinical Placements

Ist year: 44 weeks (excludes 2 weeks of introductory block classes and workshop)

Clinical Postings*	No. of weeks
Pre-Anesthesia Clinic (PAC)/PAC in wards (General Surgery, Orthopedics, Eye, ENT, Head and Neck, Neuro, Cardiothoracic, Urology, GI/HPB, Pediatric Surgery, Respiratory, Endosurgery, OBG, Elderly, Adult & Children)	10
Intensive Care Unit	
Surgical	2

Clinical Postings*	No. of weeks
Neonatal	2
Pediatric	2
Cardiothoracic	2
Neurosurgical	2
Day Care OR	1
General Surgery OR	2
Obstetrics and Gynecology	2
Orthopedic Surgery	1
Post Anesthesia Care Unit (PACU)	
Obstetrics and Gynecology	1
Pediatric	1
General Surgery	2
ENT	1
Eye	1
Vascular	1
Day Care	1
Trauma	1
Urology	1
Neuro	1
Pain Clinic	2
Oncology Wards/Palliative Care Unit	1
Secondary Care Hospital/CHCs	2
District Hospital	2
TOTAL WEEKS	44

IInd year: 45 weeks (excludes one week of block classes)

Clinical Postings* PAC/PACU/OR/ICU/CCU	Tertiary Care Centers & including Community Health Center (CHC)/Secondary Care Hospital (weeks)
General surgery	7
Obstetrics & Gynecology	7
Orthopedics & Trauma	5
Pediatric Surgery	2
Ophthalmology	3
Urology	2
ENT	2
Plastic surgery	2
Cardiothoracic	1
Neurosurgery	1
Dental	2
Emergency Surgery	2
Radio Diagnosis	2
Endoscopy Room	1
ICUs	6
TOTAL WEEKS	45

C. Methods of Teaching

Theory

- Lecture cum discussion
- Seminar
- Workshops

Practice

- Clinical conference
- Case/clinical presentation
- In depth drug study, presentation, and report
- Case study/Clinical or care pathway Presentation
- Nursing rounds
- Journal clubs
- Directed reading
- Assignments and projects
- Case study analysis
- Simulation based learning
- Problem based learning
- Experiential learning
- Reflective learning

D. Procedures/Logbook

At the end of each clinical posting, clinical logbook (Specific Procedural Competencies/Clinical Skills) (**Appendix-3**) and clinical requirements (**Appendix-4**) have to be signed by the preceptor/faculty.

E. Nurse Practitioner in Anesthesia Competencies (Adapted from ICN, 2020)

1. Acquires knowledge related to comprehensive assessment, diagnostic procedures, management of peri-anesthesia complications.
2. Applies and adapts advanced skills and competencies in patient safety while they are in complex and/or unstable environments.
3. Applies sound advanced clinical reasoning and decision making in peri-anesthetic management.
4. Uses critical thinking in assessment, management and evaluation of patient care.
5. Documents assessment, diagnosis, management and monitors treatment and follow-up care in partnership with the patient.
6. Administer drugs and treatments according to institutional protocols.
7. Uses applicable communication, counseling, advocacy and interpersonal skills to initiate, develop and discontinue therapeutic relationships.
8. Refers to and accepts referrals from other health care professionals to maintain continuity of care.
9. Practices independently wherever authorized.
10. Consults with and is consulted by other health care professionals and others.
11. Works in collaboration with the OR personnel and the surgical team members in the interest of the patient.
12. Develops a practice that is based on current scientific evidence and incorporated into the health management of patients, families and communities.
13. Uses research to produce evidence-based practice to improve the safety, efficiency and effectiveness of care through independent and inter-professional research.
14. Engages in ethical practice in all aspects of the APN role and responsibility.
15. Accepts accountability and responsibility for own advanced professional judgement, actions, and continued competence.
16. Creates and maintains a safe therapeutic environment using risk management strategies and quality improvement.
17. Assumes leadership and management responsibilities in the delivery of efficient advanced practice nursing services in a changing health care system.
18. Acts as an advocate for patients in the health care systems and the development of health policies that promote and protect the individual patient, family and community.
19. Adapts practice to the contextual and cultural milieu.

F. Institutional Protocol/standing orders-based administration of drugs & ordering of investigations and therapies

The students will be trained to both assist and administer appropriate anesthesia, order diagnostic tests, procedures, medical equipment and therapies as per institutional protocols/standing orders (**Appendix-5** Standing Orders). Administration of emergency drugs is carried out in consultation with concerned anesthesiologist and endorsed later by written orders.

Implementation of Curriculum - A tentative plan

I st year courses	Introductory classes	Workshop	Theory integrated in clinical practicum	Methods of teaching (Topic can be specified)
1. Theoretical Basis for Advanced Practice Nursing (40)	8 hours		1×32 = 32 hours	<ul style="list-style-type: none"> • Seminar/Theory application • Lecture (faculty)
2. Research Application and Evidence Based Practice in Anesthesia Care (56+24)	8 hours	40 (5 days) + 8 hours	1×24 = 24 hours	<ul style="list-style-type: none"> • Research study analysis • Exercise/Assignment (lab)
3. Advanced Skills in Leadership, Management and Teaching (56+24)	12+2 hours		1×26 = 26 hours 2.5×16 = 40 hours	<ul style="list-style-type: none"> • Clinical conference • Seminar • Exercises/Assignment (lab)
4. Advanced Pathophysiology applied to Anesthesia Care (60)			1.5×40 = 60 hours	<ul style="list-style-type: none"> • Case presentation • Seminar • Clinical conference
5. Advanced Pharmacology applied to Anesthesia Care (54)	10 hours		1×44 = 44 hours	<ul style="list-style-type: none"> • Nursing rounds • Drug study presentation • Standing orders/presentation
6. Advanced Health/ Physical Assessment (70+48)	8 hours		2×26 = 52 hours 1.5×18 = 27 hours 1×15 = 15 hours 2×6 = 12 hours 2×2 = 4 hours	<ul style="list-style-type: none"> • Clinical demonstration (faculty) • Return demonstration • Nursing rounds • Physical assessment (all systems) • Case study
TOTAL	48 hours	48 hours	336 hours	

Ist year: Introductory classes = 1 week (48 hours), Workshop = 1 week (48 hours), 44 weeks = 7.5 hours per week (330/336 hours)

II nd year courses 1 week Block classes (48 hours)	Theory and skill lab integrated into clinical practicum	Methods of teaching
7. Foundations of Anesthesia Nursing Practice (96+48 hours) = 144 hours	9×16 = 144 hours	<ul style="list-style-type: none"> • Demonstration (lab) • Return demonstration (lab) • Clinical teaching • Case study • Seminar • Clinical conference • Faculty lecture
8. Anesthesia Nursing I (96+48 hours) = 144 hours	9×16 = 144 hours	<ul style="list-style-type: none"> • Demonstration (lab) • Return Demonstration (lab) • Clinical conference/journal club • Seminar • Case presentation • Drug study (including drug interaction) • Nursing rounds • Faculty lecture
9. Anesthesia Nursing II (96+48 hours) = 144 hours	9×16 = 144 hours	<ul style="list-style-type: none"> • Demonstration (lab) • Return Demonstration • Nursing rounds • Clinical conference/journal club • Seminar • Faculty lecture

IInd year: Block classes - 1 week, 45 weeks - 8.5/9 hours per week

Topic for every teaching method will be specified in the detailed plan by the respective teacher/institution concerned.

CORE COURSES

I. Theoretical Basis for Advanced Practice Nursing

COMPETENCIES

1. Analyses the global healthcare trends and challenges.
2. Analyses the impact of healthcare and education policies in India on nursing consulting the documents available.
3. Develops in depth understanding of the healthcare delivery system in India, and its challenges.
4. Applies economic principles relevant to delivery of healthcare services in Anesthesia Nursing.
5. Manages and transforms health information to effect health outcomes such as cost, quality and satisfaction.
6. Accepts the accountability and responsibility in practicing the Nurse Practitioner's roles and competencies.
7. Actively participates in collaborative practice involving all healthcare team members in anesthesia care and performs the prescriptive roles within the authorized scope.
8. Engages in ethical practice having a sound knowledge of law, ethics, and regulation of advanced nursing practice.
9. Uses the training opportunities provided through well planned preceptorship and performs safe and competent care applying nursing process/care pathways or clinical pathways.
10. Applies the knowledge of nursing theories in providing competent care to donors and the recipients.
11. Predicts future challenges of Nurse Practitioner's roles in variety of healthcare settings particularly in India.

Hours of Instruction: 40 hours

S.No.	Topic	Hours
1.	Global Health Care Challenges and Trends (Competency-1)	2
2.	Health Systems in India: Health Care Delivery System in India - Changing Scenario (Competency-3)	2
3.	National Health Planning: 5-year plans and National Health Policy (Competency-2)	2
4.	Health Economics & Health Care Financing: Role of politics & economics in health care delivery (Competency-4)	4
5.	Digital transformation in health care: Trends & Opportunities (Competency-5)	4
Advanced Practice Nursing (APN)		
6.	APN - Definition, Scope, Philosophy, Accountability, Roles & Responsibilities (Collaborative practice and Nurse Prescribing roles) (Competency-6&7)	3
7.	Regulation (accreditation of training institutions and credentialing) & Ethical Dimensions of advanced nursing practice role (Competency-8)	3
8.	Nurse Practitioner: Roles, Types, Competencies, Clinical settings for practice, cultural competence (Competency-6)	3
9.	Training for NPs - Preceptorship (Competency-9)	2
10.	Future challenges of NP practice (Competency-11)	4
11.	Theories of Nursing applied to APN (Competency-10)	3
12.	Nursing process/care pathway applied to APN (Competency-9)	2
Self-Learning Assignments		6
1.	Identify Health Care and Education Policies and analyze its impact on Nursing	
2.	Describe the legal position in India for NP practice. What is the future of nurse prescribing policies in India with relevance to these policies in other countries?	
3.	Examine the nursing protocols relevant to NP practice found in anesthesia care units	
Total		40 hours

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II. Research Application and Evidence Based Practice in Anesthesia Care

COMPETENCIES

1. Applies sound research knowledge and skills in conducting independent research in anesthesia care setting.
2. Participates in collaborative research to improve in quality of patient care.
3. Interprets and uses research findings to produce EBP.
4. Tests/evaluates current practice to develop best practices and health outcomes and quality care.
5. Analyses the evidence for nursing interventions carried out in anesthesia nursing practice to promote safety and effectiveness of care.
6. Develops skill in writing scientific research reports.

Hours of Instruction: Theory: 56 + Lab/Skill Lab: 24 = 80 hours

S.No.	Topic	Hours
1.	Research and Advanced Practice Nursing: Significance of research and inquiry related to advanced nursing role (Competency-1)	2
2.	Research agenda for APN practice: Testing current practice to develop best practice, health outcomes and indicators of quality care in advanced practice (Competency-3,4,5), promoting research culture	5
3.	Research Knowledge and skills: - Research competencies essential for APNs (interpretation and use of research, evaluation of practice, participation in collaborative research) - Introduction to Evidence Based Practice (EBP) project - PiCOT question, steps of planning, implementation, evaluation and dissemination (project proposal and project report) Research Methodology: - Phases/steps (Research question, review of literature, conceptual framework, research designs, sampling, data collection, methods & tools, Analysis and Reporting) - Writing research proposal and research report (Competency-1 & 2)	40 (5 days workshop)
4.	Writing for publication (writing workshop: Manuscript preparation and finding funding sources) (Competency-6)	5 (workshop)
5.	Evidence based practice - Concepts, principles, importance and steps - Integrating EBP to Anesthesia Care environment - Areas of evidence in anesthesia care - Barriers to implement EBP - Strategies to promote EBP (Competency-3,4,5)	4
	Total	56 hours

Lab/Skill Lab & Assignments: 24 hours

- Identifying research priorities
- Writing exercises on research question, objectives and hypothesis
- Writing research proposal/EBP project proposal
- Scientific paper writing - preparation of manuscript for publication
- Writing Systematic review/Literature review - Analyze the evidence for a given nursing intervention in Anesthesia Unit

Practicum

- Dissertation (336 hours = 7 weeks)/Evidence Based Practice Project (EBP project)

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III. Advanced Skills in Leadership, Management and Teaching

COMPETENCIES

1. Applies principles of leadership and management in anesthesia care units.
2. Manages stress and conflicts effectively in anesthesia care setting using sound knowledge of principles.
3. Applies problem solving and decision-making skills effectively.
4. Uses critical thinking and communication skills in providing leadership and managing anesthesia care setting.
5. Builds teams and motivates others in anesthesia care setting.
6. Develops unit budget, manages supplies and staffing effectively.
7. Participates appropriately in times of innovation and change.
8. Uses effective teaching methods, media and evaluation based on sound principles and trends of teaching.
9. Develops advocacy role in patient care, maintains quality and ethics in peri-anesthesia units in hospital and community settings.
10. Provides counselling to families and patients in crisis situations particularly on table emergencies.

Hours of Instruction. Theory: 56 + Lab/Skill Lab: 24 = 80 hours

S.No.	Topic	Hours
1.	Theories, styles of leadership and current trends	2
2.	Theories, styles of management and current trends	2
3.	Principles of leadership and management applied to anesthesia care settings	4
4.	Stress management and conflict management - principles and application to anesthesia care environment, effective time management	4
5.	Quality improvement and audit	4
6.	Problem solving, critical thinking and decision making, communication skills applied to anesthesia nursing practice	5
7.	Team building, motivating and mentoring within OR set up	2
8.	Budgeting and management of resources including human resources - OR budget, material management, staffing, assignments	5
9.	Change and innovation	2
10.	Staff performance, and evaluation (performance appraisals)	6
11.	Teaching-learning theories and principles applied to Anesthesia Nursing	2
12.	Competency based education and outcome-based education	2
13.	Teaching methods/strategies - experiential, reflective, scenario based, simulation etc., Media: educating patients and staff in anesthesia care settings	8
14.	Staff education and use of tools in evaluation	4
15.	APN - Roles as a teacher	2
16.	Advocacy roles in anesthesia care environment	2
	Total	56 hours

Lab/Skill Lab: 24 hours

COMPETENCIES

1. Preparation of staff patient assignment
2. Preparation of unit budget
3. Preparation of staff duty roster
4. Patient care audit

5. Preparation of nursing care standards and protocols
6. Management of equipment and supplies
7. Monitoring, evaluation, and writing report of infection control practices
8. Development of teaching plan
9. Micro teaching/patient education sessions
10. Preparation of teaching method and media for patients and staff
11. Planning and conducting OSCE/OSPE
12. Construction of tests

Assignment: Operation Room work place violence

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- Bastable S.B. (2019) Nurse as educator: Principles of teaching and learning for nursing practice (5th ed.), New Delhi: Jones & Bartlett Publishers
- Billings D.M. & Halstead J.A. (2019) Teaching in nursing: A guide for faculty (6th ed.), St. Louis, Missouri: Saunders Elsevier
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- Roussel L. & Swansburg, R.C. (2010) Management and leadership for nurse administrators (5th ed.), New Delhi: Jones & Bartlett Publishers

ADVANCED PRACTICE COURSES

IV. Advanced Pathophysiology applied to Anesthesia Care

COMPETENCIES

1. Integrates the knowledge of pathophysiology while performing pre-anesthesia assessment, intra anesthesia monitoring and post anesthesia care.
2. Manages symptoms related to peri-anesthesia related complication using the knowledge of pathophysiology.
3. Analyzes changes relevant to peri-anesthesia patient care.

IV. A. Advanced Pathophysiology applied to Anesthesia Care

Hours of Instruction: Theory: 30 hours

Unit	Hours	Content
I	6	Cardiovascular System Pathophysiology of cardiovascular conditions <ul style="list-style-type: none"> • Hypertension • Hypotension • Coronary artery diseases • Ischemic heart disease • Heart failure • Hypertrophic cardiomyopathy • Valvular heart disease • Congenital heart disease • Pericardial disease • Cardiovascular risks related to anesthetic agents • Effect of positioning on cardiovascular system
II	6	Pulmonary System Pathophysiology of pulmonary conditions <ul style="list-style-type: none"> • Pulmonary function • Pathophysiology of lung conditions • Obstructive pulmonary disease • Restrictive pulmonary disease • Pulmonary Embolism • Pulmonary Edema • Pulmonary Hypertension • Aspiration

Unit	Hours	Content
		<ul style="list-style-type: none"> • Atelectasis • Cor pulmonale • Pulmonary risks related to anesthetic agents • Effect of positioning on pulmonary system
III	6	<p>Central Nervous System and Peripheral Nervous System Pathophysiology of Neurological Disorders</p> <ul style="list-style-type: none"> • Intracranial hypertension • Brain stem injury • Stroke • Traumatic brain Injury • Venous air embolism • Cerebral aneurysms • Arterio-venous malformations • Cerebrovascular Accident • Intracranial mass lesions • Seizures • Degenerative neurological diseases • Neuromuscular disease • Spinal cord injury • Neurological trauma • Psychiatric disorders - Depression, Bipolar disease, Schizophrenia, Neuroleptic malignant syndrome, Substance abuse • Neurological risks related to anesthetic agents • Effect of positioning on Neurological system
IV	4	<p>Renal System Pathophysiology of Renal conditions</p> <ul style="list-style-type: none"> • Benign Prostatic Hyperplasia • Tumors • Bladder trauma • Renal failure • Renal risks related to anesthetic agents
V	4	<p>Gastrointestinal and Hepatobiliary System Pathophysiology of Gastrointestinal and Hepatobiliary conditions</p> <ul style="list-style-type: none"> • GI bleed • Abdominal injury • Intestinal obstruction • Perforated appendix • Acute pancreatitis • Abdominal aorta Aneurysm • Hepatitis - Acute, Chronic • Cirrhosis • Hepatic failure • Gastrointestinal and Hepatobiliary risks related to anesthetic agents
VI	4	<p>Endocrine System Pathophysiology of Endocrine Functions</p> <ul style="list-style-type: none"> • Diabetes mellitus • Hyperthyroidism, Hypothyroidism • Hyperparathyroidism, Hypothyroidism • Mineralocorticoid excess, Mineralocorticoid deficiency, Glucocorticoid excess, Glucocorticoid deficiency, Catecholamine excess • Obesity • Carcinoid syndrome • Endocrinological risks related to anesthetic agents
Total	30 hours	

IV. B. Advanced Pathophysiology applied to Anesthesia Care

Hours of Instruction: Theory: 30 hours

Unit	Hours	Content
I	4	Musculoskeletal System (MS) Pathophysiology of MS Conditions <ul style="list-style-type: none"> • Spine Fractures • Ankylosing Spondylitis • Dislocations • Ligament injuries • Inflammatory conditions • Intervertebral disc prolapses, Potts disease • Congenital - Kyphosis, Lordosis, Scoliosis • MS risks related to anesthetic agents • Effects of position on MS System
II	8	Eye, Ear, Nose and Throat Pathophysiology of ear, nose & throat conditions <ul style="list-style-type: none"> • Conditions of the ear • Conditions of the eyes • Conditions of the nose • Conditions of the throat
III	6	Multisystem dysfunction Advanced pathophysiological process of the following conditions <ul style="list-style-type: none"> • Shock <ul style="list-style-type: none"> - Hypovolemic - Cardiogenic - Distributive • Trauma <ul style="list-style-type: none"> - Thoracic - Abdominal - Musculoskeletal - Maxillofacial
IV	4	Specific infections Advanced pathophysiological process of specific infections <ul style="list-style-type: none"> • HIV • Tetanus • SARS • Rickettsiosis • Leptospirosis • Dengue • Malaria • Chikungunya • Rabies • Avian flu • Swine flu • COVID-19
V	8	Reproductive system Advanced pathophysiological process of reproductive conditions <ul style="list-style-type: none"> • Pregnancy - Normal, Umbilical cord prolapse, Dystocia & abnormal fetal presentations and positions, Multiple gestations, Pregnancy induced hypertension, Obstructed labour, Ruptured uterus, Preterm labour • Antepartum hemorrhage - Placenta previa, Abruption placentae, Uterine rupture • Premature rupture of membranes • Chorioamnionitis • Amniotic fluid embolism • Post partum hemorrhage • HELLP (Hemolysis, Elevated Liver enzymes, Low Platelet Count) • Trauma
Total	30 hours	

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V. Advanced Pharmacology applied to Anesthesia Care

COMPETENCIES

1. Applies the pharmacological principles in providing various types of anesthesia and in the care of post anesthesia patients.
2. Analyzes and apply pharmaco-therapeutics and pharmacodynamics in anesthesia.
3. Practices safe drug administration based on principles and institutional protocols.
4. Documents accurately and provides appropriate care in case of drug allergies, anaphylaxis, and drug overdose.
5. Applies sound knowledge of drug interactions while providing anesthesia.

Hours of Instruction: Theory: 54 hours

Unit	Hours	Content
I	2	Introduction to pharmacology <ul style="list-style-type: none">• History• Classification of drugs and schedules
II	4	Pharmacokinetics and Pharmaco-dynamics <ul style="list-style-type: none">• Introduction• Absorption, Distribution, Metabolism and Excretion in critical care• Plasma concentration, half life• Loading and maintenance dose• Therapeutic index and drug safety• Potency and efficacy• Principles of drug administration<ul style="list-style-type: none">○ The rights of drug administration○ Systems of measurement○ Enteral drug administration○ Topical drug administration○ Parenteral drug administration
III	4	Inhalation anesthetics <ul style="list-style-type: none">• Introduction• Pharmacokinetics• Clinical overview of current inhalation treatment• Neuropharmacology of invasive anesthesia on cardiovascular, pulmonary, hepatic, neuromuscular, general effects, Obstetrics, and effects of fetal development• Anesthesia degradation by carbon dioxide• Clinical utility of volatile anesthesia• Standing Orders/Institutional Protocols
IV	5	Intravenous anesthetics <ul style="list-style-type: none">• Introduction• Pharmacokinetics• General principles of Intravenous anesthesia• Pharmacokinetics, pharmacodynamics, clinical uses and side effects of

Unit	Hours	Content
		<ul style="list-style-type: none"> ○ Propofol ○ Etomidate ○ Ketamine ○ Dexmedetomidine ○ Benzodiazepines ○ Barbiturates ● New intravenous anesthetics ● Standing Orders/Institutional protocol
V	4	Opioids <ul style="list-style-type: none"> ● Introduction ● Pharmacokinetics and pharmacodynamics of opioids ● Opioid mechanism ● Opioid induced respiratory depression ● Other opioid related side effects ● Remineuranil for labor pain ● Genetic differences ● Opioid induced immunomodulation and cancer recurrence ● Acute pain management in opioid dependent patients
VI	6	Neuromuscular blocking agents <ul style="list-style-type: none"> ● Introduction ● Pharmacokinetics and pharmacodynamics ● Pharmacological characteristics ● Depolarizing neuromuscular blocking drugs ● Non depolarizing neuromuscular blocking drugs ● Drug interaction ● Alternate resp to neuromuscular blocking agent ● Monitoring neuromuscular blockade ● Reversal of neuromuscular blockade
VII	4	Cholinesterase inhibitors & other pharmacological antagonists to neuromuscular blocking agents <ul style="list-style-type: none"> ● Introduction ● Pharmacokinetics and pharmacodynamics of <ul style="list-style-type: none"> ○ Neostigmine ○ Pyridostigmine ○ Edrophonium ○ Physostigmine ○ Sugammadex ○ L-cysteine
VIII	2	Anticholinergic drugs <ul style="list-style-type: none"> ● Introduction ● Pharmacokinetics & pharmacodynamics of <ul style="list-style-type: none"> ○ Atropine ○ Scopolamine
IX	4	Adrenergic agonists <ul style="list-style-type: none"> ● Introduction ● Pharmacokinetics and pharmacodynamics of <ul style="list-style-type: none"> ○ Phenylephrine ○ Alpha 2 agonists ○ Epinephrine ○ Ephedrine ○ Nor epinephrine ○ Dopamine ○ Isoproterenol ○ Dobutamine ○ Dopexamine ○ Fenoldopam

Unit	Hours	Content
X	4	Adrenergic antagonists <ul style="list-style-type: none"> • Introduction • Pharmacokinetics and pharmacodynamics of <ul style="list-style-type: none"> ○ Alpha blockers - Phentolamine ○ Mixed antagonists - Labetalol ○ Beta blockers - Esmolol, Metoprolol, Propranolol, Nebivolol, Carvedilol
XI	4	Adjuncts to anesthesia <ul style="list-style-type: none"> • Introduction • Pharmacokinetics and pharmacodynamics of <ul style="list-style-type: none"> ○ Histamine receptor antagonists - H1 receptor antagonists, H2 receptor antagonists ○ Antacids - Metoclopramide, Proton pump inhibitors, 5 HT3 receptor antagonists ○ Butyrophenones ○ Dexamethasone ○ Neurokinin 1 receptor antagonist
XII	4	Other drugs used as adjuvants <ul style="list-style-type: none"> • Introduction • Pharmacokinetics and pharmacodynamics of <ul style="list-style-type: none"> ○ Ketorolac ○ Clonidine ○ Dexmedetomidine ○ Doxapram ○ Naloxone ○ Naltrexone ○ Flumazenil
XIII	3	Hypotensive agents Introduction <ul style="list-style-type: none"> • Pharmacokinetics and pharmacodynamics of <ul style="list-style-type: none"> ○ Nitro vasodilators - Sodium Nitroprusside, Nitroglycerine, Hydralazine ○ Non-Nitro vasodilators - Fenoldopam, Calcium antagonists
XIV	4	Local anesthetics <ul style="list-style-type: none"> • Introduction • Pharmacokinetics and pharmacodynamics • Mechanism of action of local anesthetics • Pharmacology and pharmacodynamics • Pharmacokinetics of local anesthesia • Clinical use of local anesthesia • Toxicity of local anesthesia • New local anesthetics • Future therapeutics and modalities
Total	54 hours	

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- Wynne A.L., Woo T.M. & Olyaei A.J. (2007) Pharmacotherapeutics for nurse practitioner prescribers (2nd ed.), Philadelphia: Davis

VI. Advanced Health/Physical Assessment

COMPETENCIES

1. Applies the principles of system-wise physical assessment and develop appropriate examination skills.
2. Uses advanced health assessment skills to differentiate between normal and abnormal findings.
3. Orders screening and diagnostic tests based on the examination findings and institutional protocols.
4. Analyzes the physical examination findings and results of various investigations and works collaboratively with the anesthesiology team in making the right choice of anesthesia.

5. Documents assessment, diagnosis, and management and monitor follow up care in partnership with health care team members, patients, and families.

Hours of Instruction: Theory: 70 + Lab/Skill Lab: 48 = 118 hours

Unit	Hours	Content
I	4	Introduction <ul style="list-style-type: none"> • History collection • Physical examination
II	6	Cardiovascular (CVS) system <ul style="list-style-type: none"> • Anatomy & physiology of CVS - review <ul style="list-style-type: none"> ○ Structure of the heart ○ Blood flow through the heart ○ Conduction system of the heart ○ Arteries and Veins • Common Symptoms of CVS: Chest Pain, Dyspnea, Palpitations, Syncope, Calf pain • Cardiac history collection • Physical Assessment: Inspection: Skin Color, Jugular Vein Distension, Edema • Physical Assessment: Auscultation: Heart Sounds, Carotid Sounds • Physical Assessment: Palpation: Pulses, Capillary Refill, Edema, Heaves or Thrills • Other assessments: Blood Pressure, Jugular Venous Pressure • Cardiac laboratory studies: biochemical markers, hematological studies • Cardiac diagnostic studies: Electrocardiogram, echocardiography, transesophageal echocardiography, stress testing, Holter monitoring, Myocardial perfusion scans, Coronary angiography, Transcranial Doppler, Valve area & transvalvular gradient, Regurgitant fraction • Arterial blood pressure: Mean arterial pressure
III	6	Respiratory system <ul style="list-style-type: none"> • Anatomy and physiology of the Respiratory system - review • Common symptoms of the respiratory system • Respiratory system History Collection • Physical examination: Inspection: Assess Level of Consciousness, Respiratory Rate, Breathing Pattern, Skin Color of the lips, face, hands, and feet, Chest for symmetry and configuration, Clubbing • Physical examination: Auscultation: Lung Sounds • Physical examination: Percussion: Dull sounds, Clear Low-pitched Sounds, Hollow Sounds • Respiratory monitoring: Arterial blood gases, pulse oximetry, end-tidal carbon dioxide monitoring • Respiratory diagnostic tests: Chest radiography, ventilation perfusion scanning, pulmonary angiography, bronchoscopy, thoracentesis, sputum culture, pulmonary function test • Assessment of elastic resistance: Compliance, Lung volumes, Functional residual capacity, Vital capacity • Assessment of non-elastic resistance: Airway resistance to gas flow, Tissue resistance • Assessment of Alveolar, Arterial & Venous gas tensions <ul style="list-style-type: none"> ○ Oxygen - Alveolar oxygen tension, Pulmonary end capillary oxygen tension, arterial oxygen tension, Mixed venous oxygen tension ○ Carbon dioxide - Mixed venous carbon dioxide tension, alveolar carbon-dioxide tension, Pulmonary end capillary carbon dioxide tension, arterial carbon dioxide tension, End Tidal carbon dioxide tension
IV	6	Nervous system <ul style="list-style-type: none"> • Neurological history • General physical examination: Communication, Cognition, Perception (Mental Status), Cranial Nerve Examination, Sensory Examination, Motor Examination, Range of Motion, Muscle Strength, Muscular Endurance, Reflexes, Balance, Gait • Neurodiagnostic studies - Electroencephalography, Evoked potential, CT scan, MRI, PET Scan

Unit	Hours	Content
V	5	Renal system <ul style="list-style-type: none"> • History • Physical examination • Assessment of renal function - Blood urea nitrogen, Serum creatinine, creatinine clearance, creatinine ratio • Assessment of electrolytes and acid base balance • Assessment of fluid balance
VI	6	Gastrointestinal and hepatic system <ul style="list-style-type: none"> • History • Physical examination • Assessment of GI tract • Assessment of Liver function - Serum bilirubin, Serum transferases, Serum alkaline phosphatase, Serum albumin, Blood ammonia, Prothrombin time test • Diagnostic studies - radiological and imaging studies, endoscopic studies
VII	5	Endocrine system <ul style="list-style-type: none"> • History • Physical examination • Assessment of endocrinal glands and their activity - Hormonal levels, Electrolyte levels • Laboratory studies - Electrolyte levels, Blood sugar • Diagnostic tests - Radiological and imaging studies, ECG
VIII	4	Musculoskeletal system <ul style="list-style-type: none"> • History • Physical examination - gait assessment, joint assessment • Laboratory studies - blood parameters (inflammatory enzymes, uric acid) • Diagnostic studies - Radiological and imaging studies
IX	5	Reproductive system (Male & Female) <ul style="list-style-type: none"> • History • Physical examination • Laboratory studies • Diagnostic studies
X	5	Sensory Organs <ul style="list-style-type: none"> • History • Physical examination • Laboratory studies • Diagnostic studies - Radiological and imaging studies, endoscopic studies
XI	4	Assessment of children <ul style="list-style-type: none"> • Growth and development • Nutritional assessment • Specific system assessment
XII	4	Assessment of peripheral vascular system <ul style="list-style-type: none"> • History • Physical examination • Laboratory studies • Diagnostic studies - Radiological and imaging studies
XIII	4	Assessment of Neonates <ul style="list-style-type: none"> • History • Physical examination • Screening tests for newborn • Breast feeding • Nutrition
XIV	3	Assessment of Integumentary system <ul style="list-style-type: none"> • History • Physical examination • Laboratory studies • Diagnostic - Skin smear, Skin swab, Skin biopsy, Allergen test

Unit	Hours	Content
XV	3	Assessment of Elderly <ul style="list-style-type: none"> • History • Physical Examination • Laboratory studies • Geriatric assessment tools - Clinical Dementia Rating Scale, Mini-Mental State Examination, Criteria for Alzheimer's Disease, Global assessment of functioning scale, Geriatric depression scale, stroke assessment scale
Total	70 hours	

List of skills to be practiced in the skill lab (48 hours include demonstration by the faculty and practice by the students)

Lab/Skill Lab: 48 hours

- Comprehensive history taking
- Focused history taking (system wise)
- Comprehensive physical examination
- Focused physical examination (system wise)
- Monitoring clinical parameters (system wise)
- Assessment of children undergoing Anesthesia
 - neonate and child
- Assessment of older adults undergoing Anesthesia
- Assessment of pregnant women undergoing Anesthesia
- Pre-anesthesia assessment of patients undergoing various surgeries under different types of anesthesia
- Ordering and interpretation of lab/diagnostic tests as per institutional protocols

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SPECIALTY COURSES

(Foundations of Anesthesia Nursing Practice, Anesthesia Nursing I and Anesthesia Nursing II)

VII. Foundations of Anesthesia Nursing Practice

COMPETENCIES

1. Applies advanced concepts of anesthesia.
2. Collaborates with multidisciplinary team and prepares care/clinical pathways in assessment and management of patients undergoing anesthesia.
3. Provides care related to health protection, anesthesia management, anticipatory guidance, and counseling.
4. Applies ethical principles in peri-anesthesia care.
5. Practices principles of infection control relevant to peri-anesthesia environment.
6. Practices independently within the legal framework of the country towards the interest of patients, families, and communities.
7. Understands the function of anesthesia workstation.
8. Creates and maintains a safe therapeutic environment using risk management strategies and quality improvement.

Hours of Instruction: Theory: 96 + Lab/Skill Lab: 48 = 144 hours

Unit	Hours	Content
I	15	<p>Introduction to Anesthesia Nursing Practice</p> <ul style="list-style-type: none"> • Introduction to the course • Review of anatomy and physiology of vital organs (Brain, Spinal Cord, Lungs, Heart, Kidney, Liver, Pancreas, Thyroid, Adrenal and Pituitary gland) • Historical review - Anesthesia • Concepts in Anesthesia Nursing • Principles of Anesthesia Nursing • Scope of NP in Anesthesia • Operating rooms and critical care unit set up (including types of OR and ICU, equipment, supplies, OR tables and accessories, use and care of various type of monitors & ventilators, Flow sheets, supply lines and the environment) • OR personnel <ul style="list-style-type: none"> ○ Nursing staff (Nurse Managers, Charge Nurses, Scrub Nurses, Circulating Nurses, PACU Nurses) ○ Anesthesiologists ○ Surgeons ○ Anesthesia technicians ○ Ancillary staff • Technology in Anesthesia • Healthy work environment • Future challenges in NPA
II	10	<p>Pain Management</p> <ul style="list-style-type: none"> • Pain in critically ill patients • Pain - Types, Theories • Physiology, systemic responses to pain and psychology of pain - Review • Acute pain services • Pain assessment - pain scales, behavior and verbalization • Pain management - pharmacological (opioids, benzodiazepines, propofol, Alpha agonist, Tranquilizers, Neuromuscular blocking agents) • Nonpharmacological management • Transcutaneous electrical nerve stimulation (TENS)
III	15	<p>Anesthetic risk, quality improvement and liability</p> <ul style="list-style-type: none"> • Anesthetic risk <ul style="list-style-type: none"> ○ Mortality and morbidity related to anesthesia ○ Risk management • Quality improvement and patient safety in anesthesia <ul style="list-style-type: none"> ○ Structure, Process and Outcome ○ Difference in outcome measurement in anesthesia ○ Joint Commission requirement in quality improvement ○ National Accreditation Board for hospital and health care ○ Alternative payment models and pay for performance • Professionalism • Liability <ul style="list-style-type: none"> ○ Tort system ○ Breach of duty ○ Causation ○ Damages ○ Standard of care • Causes of anesthesia related lawsuits • Management of legal cases
IV	10	<p>Allergic Response</p> <ul style="list-style-type: none"> • Basic immunological principles • Hypersensitivity responses • Anaphylactic reaction • Perioperative management of patient with allergies
V	10	<p>Infection control in Operating Rooms</p>

Unit	Hours	Content
		<ul style="list-style-type: none"> Nosocomial infection in intensive care unit; methyl resistant staphylococcus aureus (MRSA) and other recently identified strains Disinfection, Sterilization Standard safety measures Prophylaxis for staff Antimicrobial therapy – review
VI	10	<p>Legal and ethical issues in Anesthesia Nursing Practice - Nurse's role</p> <p>Legal issues</p> <ul style="list-style-type: none"> Issues giving raise to civil litigation Related laws in India Medical futility Administrative law: Professional regulation Tort law: Negligence, professional malpractice, intentional torts, wrongful death, defamation, assault and battery Constitutional Law: Patient decision making <p>Ethical Issues</p> <ul style="list-style-type: none"> Difference between morals and ethics Ethical principles, ethical decision making in critical care, strategies for promoting ethical decision making Ethical issues relevant to NP in Anesthesia: withholding and withdrawing treatment Brain death, Organ donation & Counseling
VII	15	<p>Quality assurance</p> <ul style="list-style-type: none"> Design of OR/ICU Quality assurance models applicable to Operating Rooms Standards, Protocols, Policies, Procedures Infection control policies and protocols Standard safety measures Nursing audit relevant to Nurse Anesthesia Staffing Re-exploration and Death on Table
VIII	11	<p>Anesthesia work station and development systems for anesthetics</p> <ul style="list-style-type: none"> Anesthesia workstation standards and standards for anesthesia machine and work station Failure of equipment Safety features of new anesthesia work station Check out of anesthesia workstation Web based anesthesia software simulation Virtual anesthesia machine vaporizers Anesthesia breathing circuits Carbon dioxide absorbers Anesthesia ventilators Anesthesia workstation variations Waste gas scavenging systems Electrical and Fire Safety
Total	96 hours	

List of skills to be practiced in the skill lab (48 hours include demonstration by the faculty and practice by the students)

- a. Positioning of patients for various surgeries
- b. Pharmacological management of pain, sedation, agitation, and delirium
 - i. Calculation, loading and infusion of - Morphine, Fentanyl, Midazolam, Lorazepam, Diazepam, Propofol, Clonidine, Dexmedetomidine, Haloperidol
 - ii. Epidural analgesia - sensory and motor block assessment, removal of epidural catheter after discontinuing therapy, change of epidural catheter site dressing, insertion and removal of subcutaneous port for analgesic administration, intermittent catheterization for urinary retention for patients on epidural analgesia/PCA, dose titration for epidural infusion, epidural catheter adjustment, purging epidural drugs to check patency of catheter and also for analgesia.

- c. Use of TENS
- d. Scrubbing, Gowning and Gloving
- e. Sterile Techniques
 - i. Opening of Sterile packs
 - ii. Skin preparation
 - iii. Draping of patients for sterile procedures
- f. Administration of Prophylactic Antibiotics
- g. Drafting Protocols for units
- h. Ventilation
 - i. The Modern integrated Anesthesia Workstation
 - ii. Humidifiers
 - iii. Nebulizers - jet, ultrasonic
 - iv. Inhalation therapy - metered dose inhalers (MDI), dry powder inhalers (DPI)
 - v. Electronic Flowmeter
 - vi. Ventilator Settings
- i. ECG Changes, Diagnosis and Appropriate Management
- j. Heart Sounds - Identification and Diagnosis
- k. Lung sounds - Identification and Diagnosis

VIII. Anesthesia Nursing I

COMPETENCIES

1. Performs pre-anesthesia assessment of patients.
2. Applies fundamental techniques and skills in anesthesia.
3. Provides care for unconscious and anesthetized patient.
4. Practices principles of fluid and electrolyte therapy.
5. Understands the function of anesthesia related equipment.
6. Elicits common medical conditions that interfere with anesthesia administration.

Hours of Instruction: Theory: 96 + Lab/Skill Lab: 48 = 144 hours

Unit	Hours	Content
I	20	Fundamental techniques & skills <ul style="list-style-type: none"> • Assessment of critically ill patients • Care of the airway • Failed intubation • Care of the patient whose breathing is inadequate • Management of circulation • Assessing the effects of treatment • Transportation of critically ill patients • Resuscitation abandonment • Severely injured patients
II	15	Care of unconscious and anesthetized patients <ul style="list-style-type: none"> • General management • Respiratory function in the anesthetized patients • The cardiovascular system • Management of cardio respiratory arrest
III	10	Principles of fluid and electrolyte therapy <ul style="list-style-type: none"> • Fluid compartments of the body • Fluid therapy • Clinical assessment of fluid status • Estimation of blood losses during surgery and the need for blood transfusion • Specific losses and replacement • Production of sterile fields for intravenous use
IV	10	Assessment of patients before anesthesia <ul style="list-style-type: none"> • Examining the patient • Preoperative fasting and fluids • Premedication for anesthesia and surgery
V	15	Clinical use of anesthesia equipment, Oxygen gas supplies, equipment and maintenance

Unit	Hours	Content
		<ul style="list-style-type: none"> • Draw over apparatus and check list • Continuous flow machines • Gas supplies • Minimum anesthetic equipment • Storage and maintenance of equipment
VI	20	Important medical conditions for anesthesia <ul style="list-style-type: none"> • Anemia • Haemoglobinopathies • Cardio vascular conditions • Respiratory diseases • Diabetes mellitus • Obesity • Malnutrition • Chronic renal failure • Transmission of infection during anesthesia and surgery
VII	3	Documentation <ul style="list-style-type: none"> • Anesthesia records and check lists • Anesthesia reports
VIII	3	Counseling <ul style="list-style-type: none"> • Patients and families in making right choices of anesthesia
Total	96 hours	

List of skills to be practiced in the skill lab (48 hour include demonstration by the faculty and practice by the students)

- CPR (BLS and ACLS) - Neonates, Adult and Pediatrics
- Airway Management
 - Endotracheal Intubation
 - Laryngeal mask airway
 - Fiberoptic intubation
 - Cuff inflation and anchoring the tube
 - Oral and Endotracheal Suctioning open/closed methods
 - Cricothyrotomy
 - Oximetry - Pulse oximetry, Venous oximetry
 - ABG Analysis
 - Capnography - Interpretation and Management
 - Noninvasive ventilation
 - ✓ Low flow variable performance devices: nasal catheters/cannulas/double nasal prongs, face mask, face mask with reservoir bags
 - ✓ High flow fixed performance devices: Entrainment (Venturi) devices, NIV/CPAP/Anesthetic masks, T pieces, breathing circuits
- Titration of Anesthesia Gases
- Circulation and perfusion (including hemodynamic evaluation and waveform graphics)
 - Invasive BP monitoring
 - Non-invasive BP monitoring
 - Venous pressure (Peripheral, Central and Pulmonary artery occlusion pressure)
 - Insertion and removal of arterial line
 - Insertion and removal of central line
 - Pulse index Continuous Cardiac output (PiCCO)
 - Electrocardiography (ECG)
 - Waveforms
- Fluids and electrolytes
 - Fluid calculation and administration (crystalloids and colloids)
 - Administration of blood and blood products
 - Inotrope calculation, titration, and administration
 - Electrolyte correction (sodium, potassium, calcium, phosphorus, magnesium)
 - Use of fluid dispenser and infusion pumps
 - IV Cannulation

- Glycemic control, care of patient with glycemic imbalances
 - Monitoring GRBS
 - Insulin therapy (sliding scale and infusion)
 - Management of Hyperglycemia - IV fluids, insulin therapy, potassium supplementation
 - Management of hypoglycemia - Dextrose IV
- Counseling patients and family in making the right choice of anesthesia
- Management of Respiratory Depression
- Management of on table Cardiac Arrest
- Assessment of critically ill
- Transportation of critically ill
- Counseling patients and family in making right choice of anesthesia

IX. Anesthesia Nursing II

COMPETENCIES

1. Applies the knowledge of pharmacotherapeutics and pharmacodynamics in understanding and providing various types of anesthesia.
2. Prepares anesthetic plans, equipment, and drugs according to standard operating procedures and takes adequate safety precautions in using them.
3. Selects, inserts, manages and monitor invasive and non-invasive monitoring modalities.
4. Prepares, administers and/or participates in the administration of general and regional anesthesia to all patients for all surgical and medically related procedures under the supervision of anesthesiologists.
5. Provides patient-specific plan of care relevant to anesthetic techniques such as general, regional and local anesthesia, sedation and pain management.
6. Provides anesthesia and analgesia using regional techniques for obstetric, pediatric and other acute pain management.
7. Provides psychological support to help patients through the perioperative experience.
8. Identifies and collaboratively manages complications that occur during the provision of anesthesia by rapid assessment of patient's condition, stabilizing and providing ACLS if required.
9. Assesses and evaluates the patient's condition and responses for readiness to move to next level of care.

Hours of Instruction: Theory: 96 hours

Unit	Hours	Content
I	10	Drugs used in General Anesthesia (Review) <ul style="list-style-type: none"> • Inhalation agents • Intravenous anesthetics • Benzodiazepines • Opiate drugs • Non-steroidal anti-inflammatory drugs (NSAIDS) • Muscle relaxants
II	15	General Anesthesia <ul style="list-style-type: none"> • Before induction of anesthesia • Intravenous induction • Intramuscular induction • Inhalational induction
III	10	Specimen General Anesthetic Techniques <ul style="list-style-type: none"> • Levels of anesthetic services • Ketamine anesthesia • General inhalational anesthesia • Techniques of total intravenous anesthesia • General anesthesia for emergency cases
IV	15	Spinal Anesthesia & Epidural Analgesia <ul style="list-style-type: none"> • Preparation of patients for Spinal and Epidural Analgesia • Techniques of providing Spinal Anesthesia • Insertion of Epidural Catheter • Medications used for Spinal Anesthesia • Medical used for Epidural Analgesia • Post Spinal Care of patients

Unit	Hours	Content
		<ul style="list-style-type: none"> Care of Patients on Epidural Analgesia Complications & Risks involved
V	15	Nerve Block Anesthesia <ul style="list-style-type: none"> Molecular Mechanism of Nerve Block Types of Nerve Blocks Drugs used for Nerve Blocks and their Toxicokinetic Post Nerve Block Care Complications and Risks
VI	10	Conduction Anesthesia <ul style="list-style-type: none"> Toxicity and safety of local anesthetic drugs Contraindications to conduction anesthesia General precautions and basic equipment Sedation during conduction anesthesia Specimen techniques
VII	7	Choosing & planning your anesthetic technique <ul style="list-style-type: none"> Choice of anesthetic technique for a particular operation Planning general anesthesia Safety of general and conduction techniques
VIII	7	Pediatric Anesthesia <ul style="list-style-type: none"> Anesthesia for children
IX	7	Obstetric Anesthesia <ul style="list-style-type: none"> Anesthesia during pregnancy and delivery
Total	96 hours	

List of skills to be practiced in the skill lab (48 hours include demonstration by the faculty and practice by the students)

- Ventilator settings
- Cardiac monitoring
- Peripheral IV-line access
- Oral/Nasal/Endotracheal suction
- Interpretation of ECG
- Interpretation of ABG results
- Reading of Chest X-ray
- CVP monitoring
- Pulse oximetry
- Infusion Pump
- Oxygen administration
 - Nasal prongs
 - Face mask
 - Venturi mask
- Loading and administering inotropes
- Loading and administering narcotic analgesics
- Inducing patients
- Reversal and extubation of patients
- Positioning patients for Spinal anesthesia, Epidural catheter insertion & Nerve Blocks
- Care of PACU patients
- Providing conduction anesthesia in lab

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The skills listed under the Specialty courses such as Foundations of Nurse Anesthesia Practice, Anesthesia Nursing I and Anesthesia Nursing II are taught by the faculty in skill lab. The students after practicing them in the lab will continue to practice in the respective anesthesia care relevant settings (e.g. Operating rooms and ICUs). The log book specifies all the requirements to be completed and the list of skills that are to be signed by the preceptor/faculty once the students develop proficiency in doing the skills independently.

Appendix-1 EQUIPMENT LIST FOR ANESTHESIA

1. ABG Analyzer
2. Anesthesia procedure trolley
3. Anesthesia Workstation
4. Bain Circuit
5. Computer
6. Crash Cart
7. Defibrillator
8. Doppler Machine
9. Fiberoptic Bronchoscope
10. Glucometer
11. Intubating Videoscope
12. IV Stand
13. Operating Room Table
14. Oropharyngeal Airways
15. Overhead LED Lights
16. Oxygen, 4 Bar Medical Air and Vacuum - Pipe lines
17. Patient Transfer Roller/PAT Slide
18. Patient warming unit (Bair Hugger)
19. Position Articles
20. Suction Jars
21. Syringe Pump

Appendix-2 ASSESSMENT GUIDELINES (including OSCE guidelines)

INTERNAL ASSESSMENT (Theory and Practical)

1st year

1. Theoretical Basis for Advanced Practice Nursing

College examination of Theory only: 50 marks

Internal assessment:

Test paper and Quiz: 10 marks

Written assignment/term paper (Global and National Healthcare Trends & Policies): 10 marks

Clinical seminar (Clinical/Care pathway in specific clinical condition/Application of specific nursing theory): 5 marks

Final theory exam: 25 marks

Total: 50 marks

2. Research Application and Evidence Based Practice in Anesthesia Care

Theory:

Test papers: 20 marks

Written assignment (Literature review/Preparation of research instrument) : 5 marks

Journal club (Analysis of research evidence for anesthesia nursing competencies) : 5 marks

Total: 30 marks

3. **Advanced Skills in Leadership, Management and Teaching**
Theory:
 Test papers: 15 marks
 Journal club (Trends in Leadership/Management/Teaching) : 5 marks
 Written assignment (OR work place violence) : 5 marks
 Microteaching: 5 marks
Total: 30 marks

4. **Advanced Pathophysiology & Advanced Pharmacology applied to Anesthesia Care**
Theory:
 Test papers and Quiz: 20 marks (Pathophysiology - 10, Pharmacology - 10)
 Drug studies (Drug study and presentation) : 5 marks
 Case presentation and case study report (Pathophysiology) : 5 marks
Total: 30 marks

5. **Advanced Health/Physical Assessment**
Theory:
 Test papers: 20 marks
 Written assignment (Diagnostic/investigatory reports - interpretation and analysis of findings) : 10 marks
Total: 30 marks

Practicum:
 Clinical performance evaluation: 10 marks
 End of posting exam (OSCE): 10 marks
 Case presentation and case study report: 5 marks
 Internal OSCE: 25 marks
Total Internal practical: 50 marks
 (End of posting exam can be conducted in any PAC)

IInd year

1. **Foundations of Anesthesia Nursing Practice**
Theory:
 Test papers and Quiz: 20 marks
 Written assignment (Infection control protocols/Standards in Anesthesia workstation) : 10 marks
Total: 30 marks

Practicum:
 Clinical performance evaluation: 20 marks
 Drug studies (Drug study and presentation): 10 marks
 Case presentation and case study report (Family education/counselling): 5 marks
 Case presentation (Application of Clinical/Care Pathway): 5 marks
 End of posting exam (OSCE): 10 marks
 Internal OSCE: 50 marks
Total Internal practical: 100 marks

2. **Anesthesia Nursing I**
Theory:
 Test papers and Quiz: 20 marks
 Clinical seminar and Journal club: 10 marks
Total: 30 marks

Practicum:
 Clinical performance evaluation: 20 marks
 End of posting exam (OSCE): 10 marks
 Clinical presentation: 10 marks
 Case study report: 10 marks
 Internal OSCE: 50 marks
Total Internal practical: 100 marks

3. **Anesthesia Nursing II**
Theory:
 Test papers: 20 marks
 Clinical Seminar: 10 marks
Total: 30 marks

Practicum:

Clinical performance evaluation: 20 marks
End of posting (OSCE): 10 marks
Clinical presentation: 10 marks
Case study report (Developed clinical/care pathway): 10 marks.
Internal OSCE: 50 marks
Total Internal practical: 100 marks
(End of posting exam can be conducted in any PAC/PACU/ICU)

4. Dissertation/EBP project
Practicum: 50 marks

EXTERNAL (FINAL) EXAMINATION (As per schedule in syllabus)

Theory: Short answer and essay type questions (Weightage can be decided by the University) {Essay 2×15 = 30 marks, Short answers 5×6 = 30 marks, Very short 5×2 = 10 marks}

OSCE GUIDELINES FOR INTERNAL AND EXTERNAL PRACTICAL EXAMINATION

Ist year

I. AVANCED HEALTH/PHYSICAL ASSESSMENT

CORE COMPETENCY DOMAINS TO BE EXAMINED

1. Pre-anesthesia history taking and physical examination of an adult patient
2. Pre-anesthesia history taking and physical examination of a child patient
3. Interpretation of findings and results
4. Monitoring of clinical parameters

Number of stations: 5 (4+1 Rest stations)

Time for each station: 10 minutes

Marks for each station: 5 marks (As per competency check list and allotted marks)

Total: 4×5 = 20 marks

Oral exam = 5 marks

Total = 25 marks

EXTERNAL

OSCE: 50 marks

CORE COMPETENCY DOMAINS

1. Focused history taking of adult patient
2. Focused physical examination of adult patient
3. Focused history taking of pediatric patient
4. Focused physical examination of pediatric patient
5. Interpretation of history and physical exam findings
6. Interpretation of results of lab and diagnostic tests
7. Monitoring clinical parameters

Number of stations: 10 (8+2 Rest stations)

Time for each station: 10 minutes

Marks for each station: 5 marks (As per competency check list and allotted marks)

Total: 8×5 = 40 marks

Oral exam = 10 marks

Total = 50 marks

<p>On completion of procedural competencies in log book and clinical requirements, the NP student is qualified to appear for final practical examination.</p>
--

IInd year

I. FOUNDATIONS OF ANESTHESIA NURSING PRACTICE

INTERNAL

OSCE: 50 marks

CORE COMPETENCY DOMAINS TO BE EXAMINED

1. Focused history and physical examination and interpretation of findings and results

2. Monitoring competencies (invasive and noninvasive)
3. Therapeutic interventions (emergency procedural competencies) including drug administration
4. Preparation of operation table
5. Positioning for surgeries
6. Family Education and counseling
7. Infection control practices

Number of stations: 5 (4+1 Rest stations)

Time for each station: 10 minutes

Marks for each station: 10 marks (As per competency check list and allotted marks)

Total: 10×4 = 40 marks

Oral exam = 10 marks

Total = 50 marks

EXTERNAL

OSCE:100 marks

CORE COMPETENCY DOMAINS

1. Focused history taking, physical examination and interpretation of results of adult patient
2. Focused history taking, physical examination and interpretation of results of pediatric patient
3. Monitoring competencies (invasive and noninvasive)
4. Development of care plan
5. Family education and counseling
6. Therapeutic interventions (emergency procedures) including drug administration
7. Preparation of operation table
8. Positioning for surgeries
9. Infection control practices

Number of stations: 10 (8+2 Rest stations)

Time for each station: 10 minutes

Marks for each station: 10 marks (As per competency check list and allotted marks)

Total: 8×10 = 80 marks

Oral exam = 20 marks

Total = 100 marks

II & III. ANESTHESIA NURSING I & II

INTERNAL

OSCE-50 marks

CORE COMPETENCY DOMAINS

1. Focused history and physical examination and interpretation of findings and results
2. Monitoring competencies (invasive and noninvasive)
3. Development of plan of care/care pathway
4. Family education and counseling
5. Therapeutic interventions (emergency procedural competencies) including drug administration
6. Infection control practices

Number of stations: 5 (4+1 Rest stations)

Time for each station: 10 minutes

Marks for each station: 10 marks (As per competency check list and allotted marks)

Total: 10×4 = 40 marks

Oral exam = 10 marks

Total = 50 marks

EXTERNAL

OSCE:100 marks

CORE COMPETENCY DOMAINS

1. Focused history taking, physical examination and interpretation of results of adult patient
2. Focused history taking, physical examination and interpretation of results of pediatric patient
3. Monitoring competencies (invasive and noninvasive)
4. Family education and counseling

5. Development of plan of care/care pathway
6. Drug administration
7. Therapeutic interventions (emergency procedures)
8. Infection control practices

Number of stations: 10 (8+2 Rest stations)

Time for each station: 10 minutes

Marks for each station: 10 marks (As per competency check list and allotted marks)

Total: 8×10 = 80 marks

Oral exam = 20 marks

Total = 100 marks

On completion of procedural competencies in log book and clinical requirements, the NP student is qualified to appear for final practical examination.

Appendix-3
CLINICAL LOG BOOK FOR NURSE PRACTITIONER IN ANESTHESIA (NPA) -
POSTGRADATE RESIDENCY PROGRAM
(Specific Procedural Competencies/Clinical Skills)
1st year

S.No.	Specific Competencies/Skills	Number Performed/ Observed/Assisted	Date	Signature of the Preceptor*/Faculty
I	CLINICAL RESEARCH PROJECT APPLICATION AND EVIDENCE BASED PRACTICE			
1	Preparation for research instrument	P		
2	Preparation of a manuscript for publication	P		
3	Writing systematic review/literature review	P		
4	Dissertation/EBP project (II Year) <i>Topic:</i>	P		
II	LEADERSHIP, MANAGEMENT AND TEACHING SKILLS			
1	Management of equipment and supplies	P		
2	Monitoring, evaluating, and writing report related to infection control	P		
3	Preparation of teaching plan and media for patients' education	P		
III	HEALTH ASSESSMENT			
1	<i>Focused history taking (system wise)</i>	P		
2	<i>Focused Physical Examination (system wise) - 10 each system</i>			
2.1	Respiratory system	P		
2.2	Cardiovascular system	P		
2.3	Gastrointestinal system	P		
2.4	Neurological system	P		
2.5	Genitourinary system	P		
2.6	Endocrine system	P		
2.7	Hematological system	P		
2.8	Musculoskeletal system	P		
2.9	Integumentary system	P		
2.10	Sensory organs	P		
3	<i>Age Specific History & Physical Examination</i>			
3.1	Neonate	P		

S.No.	Specific Competencies/Skills	Number Performed/ Observed/Assisted	Date	Signature of the Preceptor*/Faculty
3.2	Child	P		
3.3	Adult	P		
3.4	Geriatric	P		
4	<i>History & Physical Examination of a Pregnant Woman</i>	P		
IV	DIAGNOSTIC PROCEDURES			
1	<i>Collecting Blood Sample for Laboratory Tests</i>			
1.1	Biochemistry	P		
1.2	Clinical Pathology	P		
1.3	Microbiology/Virology	P		
1.4	ABG	P		
2	<i>Assisting Invasive Procedures</i>			
2.1	Fiberoptic Bronchoscopy	A		
2.2	Video Assisted Laryngoscopy	A		
3.	<i>Non-Invasive Procedures</i>			
3.1	Ultrasound	P		
3.2	ECG	P		
V.	BASIC COMPETENCIES			
1	<i>Pre-anesthesia Assessment</i>	P		
2	<i>Scrubbing, Gowning and Gloving</i>	P		
3	<i>IV Cannula Insertion</i>	P		
4	<i>Endotracheal Intubation</i>	P		
5	<i>Laryngeal Mask Intubation</i>	P		
6	<i>Positioning Patients for Surgery</i>			
6.1	Supine	P		
6.2	Lateral	P		
6.3	Prone	P		
6.4	Lithotomy	P		
6.5	Jack-Knife	P		
6.6	Trendelenburg	P		
6.7	Rose	P		
7	<i>Setting up, use and maintenance of basic equipment</i>			
7.1	Anesthesia Workstation	P		
7.2	Cardiac Monitor	P		
7.3	Assisting in ET/CO ₂ Probe Placement	P		
7.4	Pulse Oximeter	P		
7.5	Sequential compressing device	P		
7.6	12-lead ECG monitor	P		
7.7	Syringe Pump	P		
7.8	Infusion Pump	P		
7.9	Operating Room Table	P		

S.No.	Specific Competencies/Skills	Number Performed/ Observed/Assisted	Date	Signature of the Preceptor*/Faculty
8	<i>Interpretation of critical parameters and Radiological images</i>			
8.1	Arterial Blood Gas (ABG)	P		
8.2	Pulse Oximetry	P		
8.3	Capnography	P		
8.4	Central Venous Pressure Monitoring	P		
8.5	Electrocardiogram (ECG)	P		
8.6	Intracranial pressure (ICP)	P		
8.7	PiCCO (Pulse index Continuous Cardiac Output)	P		
8.8	Glasgow Coma Score	P		
8.9	Sedation Score	P		
8.10	Pain Score	P		
8.11	Braden Score	P		
8.12	Aldrete's Score	P		
8.13	GRBS	P		
8.14	Chest Xray	P		
8.15	MRI/CT	P		
9	<i>Monitoring</i>			
9.1	Invasive BP monitoring	P		
9.2	Noninvasive BP monitoring	P		
9.3	Peripheral vascular status	P		
10	<i>Assisting with Administration of Blood</i>	A		
11	<i>Preparation of a Drug book with all medications relevant to anesthesia</i>	P		

*When the student is found competent to perform the skill, it will be signed by the preceptor.

Students are expected to perform the listed skills/competencies many times until they reach level 3 competency, after which the preceptor signs against each competency.

Preceptors/faculty must ensure that the signature is given for each competency only after they reach level 3.

- Level 3 competency denotes that the NPA student is able to perform that competency without supervision
- Level 2 competency denotes that the student is able to perform each competency with supervision
- Level 1 competency denotes that the student is not able to perform that competency/skill even with supervision

Signature of the Program Coordinator/Faculty

Signature of the HOD/Principal

IInd year

S.No.	Specific Competencies/Skills	Number Performed/ Observed/Assisted	Date	Signature of the Preceptor*/Faculty
ADVANCED COMPETENCIES				
1	<i>Assisting/Providing Anesthesia</i>			
1.1	General	P		
1.2	Spinal	P		
1.3	Conduction	P		
1.4	Nerve Block	P		
2	<i>Preparation and Administration of</i>			
2.1	Inducing Agents	P		

S.No.	Specific Competencies/Skills	Number Performed/ Observed/Assisted	Date	Signature of the Preceptor*/Faculty
2.2	Inhalation Agents	P		
2.3	Reversal Agents	P		
2.4	Neuromuscular Blocking Agents	P		
2.5	Prophylactic Antibiotics	P		
2.6	Narcotics	P		
3	<i>Triaging Surgeries</i>	P		
4	<i>Family Education and Counseling</i>	P		
5	<i>BLS</i>			
5.1	Adult	P		
5.2	Neonate	P		
5.3	Child	P		
6	<i>ACLS</i>	P		
7	<i>Hand-off</i>			
7.1	Hand-off from OR to PACU	P		
7.2	Hand-off from OR to ICU	P		
8	<i>Infection Control Practices in OR</i>			
8.1	Opening of Sterile Packs	P		
8.2	Skin preparation for procedures	P		
8.3	Draping of patients for sterile procedure	P		
9	<i>Preparation of policies/standards/protocols in peri-anesthesia settings</i>	P		
10	<i>Epidural analgesia</i>			
a.	Sensory and motor block assessment	P		
b.	Removal of epidural catheter	P		
c.	Change of epidural catheter dressing	P		
d.	Insertion and removal of subcutaneous port for analgesic administration	P		
e.	Dose titration for epidural infusion	P		
f.	Epidural catheter adjustment	P		
g.	Purging epidural drugs	P		
11.	<i>Administration of Additional drugs specific to Anesthesia</i> a. Naloxone b. N Acetyl Cysteine c. d. e.	P		
12	<i>Performing the following vital procedures</i>			
12.1	Intravenous fluid administration (Colloid/Crystalloid)	P		
12.2	Application of TED stocking	P		
12.3	Care and removal of CVP line	P		
12.4	Care and removal of arterial line	P		
12.5	Care of Patient with Pacemaker	P		
12.6	Blood collection from arterial line	P		

S.No.	Specific Competencies/Skills	Number Performed/ Observed/Assisted	Date	Signature of the Preceptor*/Faculty
13	Administration of			
13.1	Insulin therapy (sliding scale & infusion) Calculation, titration and administration	P		
13.2	Steroids	P		
14	Extubation			
14.1	ET Extubation	P		
14.2	LMA Extubation	P		
14.3	Nasal Extubation	P		
15	Ordering investigations			
15.1	ECG	P		
15.2	ABG	P		
15.3	Chest X-ray	P		
15.4	Ultrasound	P		
15.5	Basic biochemistry investigations	P		
15.6	Basic microbiology investigations	P		

*When the student is found competent to perform the skill, it will be signed by the preceptor.

Students are expected to perform the listed skills/competencies many times until they reach level 3 competency, after which the preceptor signs against each competency.

Preceptors/faculty must ensure that the signature is given for each competency only after they reach level 3.

- Level 3 competency denotes that the NPA student is able to perform that competency without supervision
- Level 2 competency denotes that the student is able to perform each competency with supervision
- Level 1 competency denotes that the student is not able to perform that competency/skill even with supervision

Note: 5-10% of procedures that are rare should be practiced in skill lab and attained level 3 competency.

Signature of the Program Coordinator/Faculty

Signature of the HOD/Principal

Appendix-4
CLINICAL REQUIREMENTS FOR NURSE PRACTITIONER IN ANESTHESIA (NPA) -
POSTGRADATE RESIDENCY PROGRAM
Ist year

S.No.	Clinical Requirement	Date	Signature of the Preceptor/Faculty
1	Clinical Seminar/Journal Club/Clinical Conference		
1.1	*APN - Clinical pathway in specific clinical condition/ Application of specific nursing theory (Clinical seminar) <i>Title of the topic:</i>		
1.2	*RA - Evidence search for Nurse Practitioner in Anesthesia competencies (Clinical conference/Journal club) <i>Title of the topic:</i>		
1.3	*L,M&T - Leadership/Management/Teaching (Journal club) Ex. Trends in Team Building <i>Title of the topic:</i>		
2	Clinical Rounds (with nursing staff, faculty, students) - Case/Clinical presentation		
2.1	Pathophysiology (Clinical conditions) <i>Name of clinical condition:</i>		
2.2	Pathophysiology (Clinical conditions) Case study (written report) <i>Name of clinical condition:</i>		

S.No.	Clinical Requirement	Date	Signature of the Preceptor/Faculty
2.6.4			
2.6.5			
2.6.6			
2.6.7			
2.6.8			
2.6.9			
2.6.10			
3	<i>Interdisciplinary Clinical Rounds (with ICU doctors) - Clinical/Case Presentation</i>		
3.1	Anesthesia Nursing I		
	<i>Name of clinical condition:</i>		
3.2			
3.3			
3.4			
3.5	<i>(Case Study Report)</i>		
3.6	Anesthesia Nursing II		
3.7			
3.8			
3.9	<i>(Case Study Report)</i>		
3.10	<i>Written Report (Developed Clinical/Care Pathway)</i>		
4	Providing General Anesthesia - 50 times for ASA grade I patients		
5	Providing Spinal Anesthesia - 50 times for pregnant mothers (15 at least during emergency)		
6	Providing Nerve Block - 50 times		
7	Epidural Catheter Insertion - 30 times		
8	Providing Conduction Anesthesia - 50 times		
9	Preparation and Administration of Anesthetic agents - each anesthetic agent - 40 times		

Note: Clinical presentation can be written for case study report

Signature of the Program Coordinator/Faculty

Signature of the HOD/Principal

CLINICAL EXPERIENCE DETAILS

Name of the Clinical Area	Clinical Condition	Number of days care given	Signature of Faculty/Preceptor

Corticosteroid

- 17. Hydrocortisone
- 18. Dexamethasone

Antiepileptic

- 19. Levetiracetam
- 20. Phenytoin

Sedatives & relaxants

- 21. Valium
- 22. Midazolam
- 23. Morphine Sulphate
- 24. Pentazocine Lactate (Fortwin)
- 25. Pethidine Hydrochloride
- 26. Propofol

Electrolytes & acid base correction agents

- 27. Soda bicarbonate 8.4%
- 28. Soda bicarbonate 7.5%
- 29. Magnesium sulphate
- 30. Potassium chloride

Additional drugs that can be administered specific to Operating Rooms are as follows:

- Inducing agents
- Muscle relaxants
- Reversal agents
- Naloxone

The following investigations and therapies may be ordered by the NPs

Ordering Investigations	Ordering Therapies
<ul style="list-style-type: none"> • ECG • ABG • Chest X ray • Basic Biochemistry investigations - Hb, PCV, TIBC, WBC Total, WBC differentials, ESR, electrolytes, platelets, PT, aPTT, bleeding and clotting time, procalcitonin, D-dimer, creatinine, HbA1C, AC, PC, HDL, LDL, TIG, cholesterol total, HIV, HBsAg, HCV • Basic Microbiology investigations - blood samples for culture and sensitivity, tips of vascular access and ET tube for culture 	<ul style="list-style-type: none"> • Nebulization • Chest physiotherapy • Distal colostomy wash • Insertion and removal of urinary catheter for female patients • Test feeds • TEDS • Surgical dressing • Starting and closing dialysis • Application of Ichthammol Glycerin/Magnesium Sulphate dressing for thrombophlebitis/extravasation • Pin site care for patients on external fixators • Isometric and isotonic exercises

INSTITUTIONAL STANDING ORDERS AND PROTOCOLS

In every hospital, the standing orders for drug administration with specific dosage to be administered during emergency situations can be made available as guidelines for NPA graduates. The NP students will be trained to administer these drugs under supervision by preceptors/NP faculty. The protocols for ordering selected investigations and carrying out specific therapeutic procedures can also be available in every hospital that trains NPA students.

Dr. T. Dileep Kumar
President, INC