SYLLABUS AND REGULATIONS

Nurse Practitioner in Critical Care

Post Graduate Residency Program

Department of Nursing

UNIVERSITY OF DELHI

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d. Guest lecturers: for pharmacology, pathophysiology, critical ...

Indian Nursing Council

NURSE PRACTITIONER IN CRITICAL CARE

POST GRADUATE 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, 2015 (NHP, 2015 draft document). It emphasizes human resource development in the areas of education and training alongside regulation and legislation. The government recognizes significant expansion in tertiary care services both in public and private health sectors. In building their capacity, it is highly significant that the health care professionals require advanced educational preparation in specialty and super-specialty services. To support specialized and super-specialized healthcare services, specialist nurses with advanced preparation are essential. Developing training programs and curriculum in the area of tertiary care is recognized as the need of the hour. Nurse practitioners (NPs) will be able to meet this demand provided they are well trained and empowered to practice. 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 critical care settings in tertiary care centres. Nurse practitioners have been prepared and functioning in USA since 1960s, UK since 1980s, Australia since 1990s and Netherlands since 2010.

Nurse practitioners in critical care / acute care, oncology, emergency care, neurology, cardiovascular care, anesthesia and other specialties can be prepared to function in tertiary care settings. Rigorous educational preparation will enable them to assess and participate in treating patients with critical illnesses both for prevention and promotion of health. A curricular structure / framework is proposed by INC towards preparation of Nurse Practitioner in Critical Care (NPCC) at Masters Level. The special feature of this program is that it is a clinical residency program emphasizing a strong clinical component with 15% of theoretical instruction and 85% of practicum. Competency based training is the major approach and NP education is based on competencies adapted from International Council of Nurses (ICN, 2005), and NONPF competencies (2012). Every course is based on achievement of competencies.

Critical Care Nurse Practitioner Program is intended to prepare registered BSc Nurses to provide advanced nursing care to patients who are critically ill. The nursing care is focused on stabilizing patients' condition, minimizing acute complications and maximizing restoration of health. These NPs are required to practice in critical care units of tertiary care centers. The program consists of various courses of study that are based on strong scientific foundations including evidenced based practice and the management of complex health systems. These are built upon the theoretical and practice competencies of BSc trained nurses. On completion of the program and registration with respective state council they are permitted to practice all competencies listed in the log book of INC syllabus and also independently administer drugs and order diagnostic tests, procedures, medical equipment and therapies as per institutional protocols/standing orders. The NPs in CC when exercising this authority, they are accountable for the competencies in

a) Patient selection/admission into ICU and discharge
b) Problem identification through appropriate assessment
c) Selection/administration of medication or devices or therapies
d) Patients' education for use of therapeutics
e) Knowledge of interactions of therapeutics, if any
f) Evaluation of outcomes and
g) Recognition and management of complications and untoward reactions.

The NP in critical care is prepared and qualified to assume responsibility and accountability for the care of critically ill patients under his/ her care.

The said post graduate degree will be registered as an additional qualification by the State Nursing Council.

Philosophy

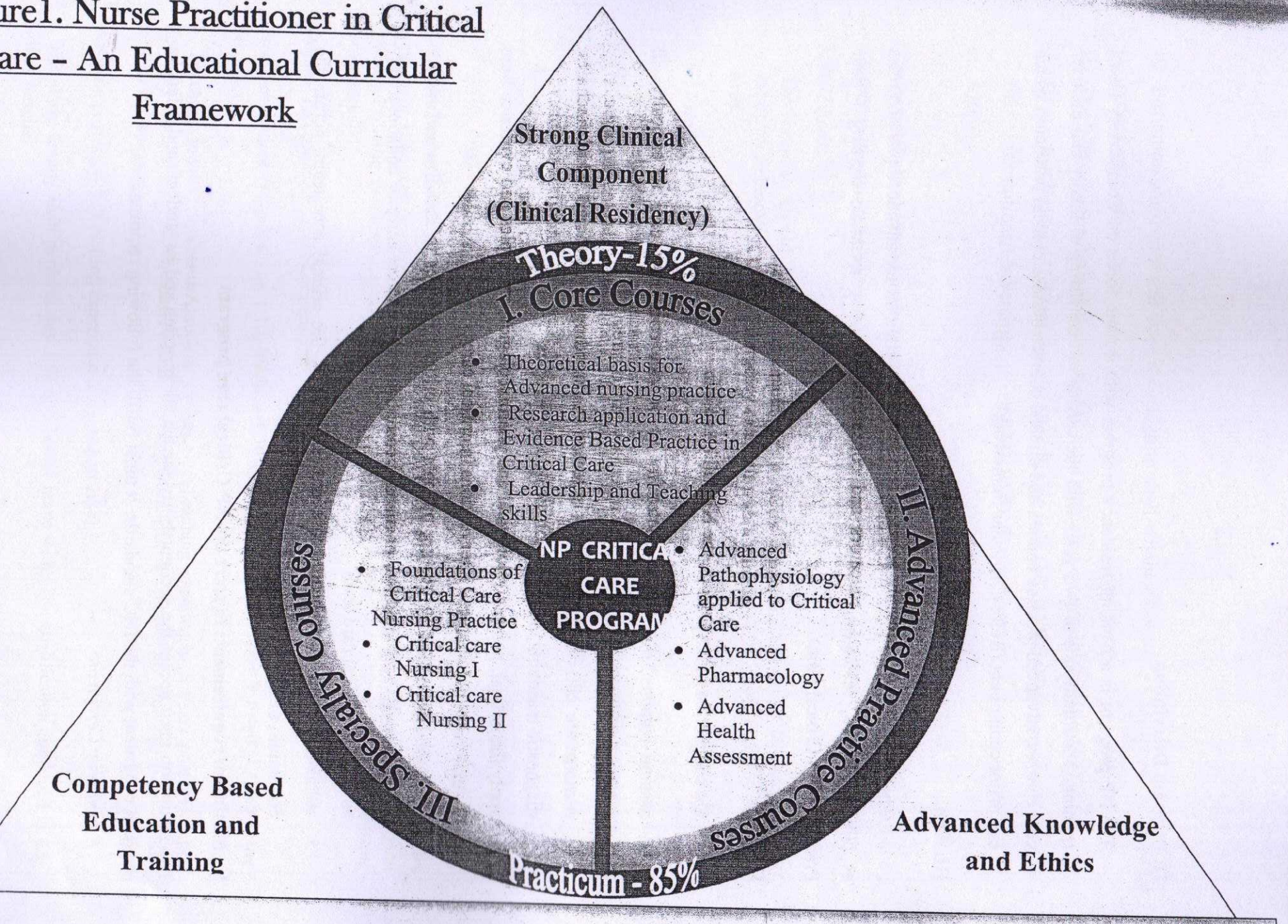
Indian Nursing Council believes that there is a great need to establish a postgraduate program titled Nurse Practitioner in Critical Care to meet the challenges and demands of tertiary health care services in India which is reflected in the National Health Policy (NHP draft document 2015) in order to provide quality care to critically ill patients and families.

INC believes that postgraduates from a residency program focused on strong clinical component and competency based training must be able to demonstrate clinical competence based on sound theoretical and evidence based knowledge. The teaching learning approach should focus on adult learning principles, competency based education, collaborative learning, preceptored clinical learning with medical and nursing preceptors, experiential learning and self-directed learning. Education providers/preceptors/mentors must update their current knowledge and practices. Medical faculty are invited to participate as preceptors in the training.

INC also believes that a variety of educational strategies can be used in the clinical settings to address the deficit of qualified critical care nursing faculty. It is hoped to facilitate developing policies towards registration/licensure and create cadre positions for appropriate placement of these postgraduate critical care NPs to function in critical care units of tertiary care centers.

An educational framework for the NP curriculum is proposed (See Figure 1).

ure1. Nurse Practitioner in Critical
are – An Educational Curricular
Framework



Registered B.Sc Nurse with 1 year Clinical Experience preferably in Critical Care Setting

II. Program Description

The NP program is a Nursing residency program with a main 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 critical care NP program prepares registered BSc nurses for advanced practice roles as clinical experts, managers, educators and consultants leading to M.Sc Nursing (Nurse Practitioner in Critical Care)

IV. Objectives

On completion of the program, the NP will be able to

1. assume responsibility and accountability to provide competent care to critically ill patients and appropriate family care in tertiary care centres
2. demonstrate clinical competence / expertise in providing critical care which includes diagnostic reasoning, complex monitoring and therapies
3. apply theoretical, patho-physiological and pharmacological principles and evidence base in implementing therapies / interventions in critical care
4. assess and participate in treating patients with critical illnesses to stabilize and restore patient's health and minimize or manage complications independently or collaboratively as a part of critical care team
5. collaborate with other health care professionals in the critical care team, across the continuum of critical care

V. Minimum requirements to start the NP Critical care program

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

1. *Essentiality Certificate*

a. Institution who wishes to start NP Program shall obtain essentiality Certificate/Government order from State.

b. The following institutions are exempted from obtaining essentiality certificate

(i) Institutions / Universities already offering BSc (N) or MSc (N) programs

(ii) Institutions/Universities offering MBBS/DNB programs.

c. *Hospital*

The hospital should be a parent tertiary care centre, with a minimum of 200 beds. It can have a medical college or nursing college

3. *ICU Beds*

The hospital should have a minimum of 4 ICUs namely medical ICU, surgical ICU, cardio/cardiothoracic ICU and Emergency care unit with a minimum of 5 beds each and total of 20 beds.

4. *ICU staffing*

a. Every ICU should have a charge nurse with BSc or MSc qualification
b. The nurse patient ratio should be 1:1 for every shift for ventilated patients
c. For the rest of ICU beds the nurse patient ratio should be 1:2 for every shift
d. Provision of additional 45% staff towards leave reserve
e. Doctor patient ratio can be 1:5

5. Faculty/ Staff resources

a. **Clinical area:** Nursing Preceptor- Full time qualified GNM with 6 years of experience in critical care nursing or BSc with 2 years experience in critical care nursing or MSc (Specialty-Medical Surgical Nursing/Pediatric Nursing/Obstetrics & Gynecology Nursing) with one year critical care nursing experience.

Medical Preceptor: Medical PG/Intensivist

Preceptor student ratio -Nursing 1:10, Medical 1:10 (Every student must have a medical and nursing preceptor)

b. **Teaching faculty:** Professor/Associate professor- 1(Teaching experience- 5 years post PG- MSc Specialty-Medical Surgical Nursing/Pediatric Nursing/Obstetrics & Gynecology Nursing) (One faculty for every 10 students).

Assistant professor- 1 (Teaching experience- 3 years post BSc)

c. The above faculty shall perform dual role or a senior nurse with MSc qualification employed in the tertiary hospital.

2 guest lecturers: for pharmacology, pathophysiology, critical care medicine.

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 facility with access to online journals
d. E-learning facilities

7. *List of equipment for ICU(enclosed) Appendix 1*

8. *Student Recruitment/Admission Requirements*

a. Applicants must possess a registered B.Sc/PBBSC nurse with a minimum of one year clinical experience, preferably in any critical care setting prior to enrolment.
b. Must have undergone the BSC (N) in an institution recognized by the Indian Nursing Council and have been registered in any state Nursing Council.
c. Must have scored not less than 55% aggregate marks in the BSc program
d. Selection must be based on the merit of an entrance examination and interview held by the competent authority
e. Must be physically fit

Number of candidates: 1 candidate for 4-5 ICU beds,

Salary: 1. In-service candidates will get regular salary
2. Stipend /Salary for the other candidates as per the salary structure of the hospital where the course is conducted

VI. EXAMINATION REGULATIONS

Eligibility for appearing for the examination

Attendance:

a. Minimum 80% for Theory and practical before appearing for final university examination but must complete 100% in practical before the award of degree.
b. There is no minimum cut off for Internal assessment marks, as internal and external marks are added together for declaring pass.
c. Rank will not be declared for candidates who fail in any subject.

Examining and degree awarding authority: Respective University

Classification of results

a. The declaration of results will be done as pass (60%) or fail and with rank
b. For calculating the rank, the aggregate of the two years marks will be considered.
c. If a candidate fails in theory or practical, he/she has to reappear for the paper in which he/she has failed.
d. Rank will not be declared for candidates who fail in any subject.

Practical Examination

OSCE type of examination will be followed alongside viva (Oral Examination) refer OSCE guidelines found in appendix 2.

Maximum number of students per day = 10 students

Examination should be held in clinical area only.

The team of practical examiners will include one internal examiner [(M.Sc. Faculty with two years experience in teaching the NPCC program / M.Sc. Faculty (Medical Surgical Nursing preferable) with five years of Post PG experience], one external examiner(same as above) and one medical internal examiner who should be preceptor for NPCC program.

Dissertation

Research guides: Main guide – Nursing faculty (3 years Post PG experience) teaching NP program, Co-guide: Medical preceptor.
Submission of research proposal: 6-9 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 must be obtained by the hospital ethics committee since it involves clinical research.

***Topic selection*:** The topic should be relevant to critical care nursing that will add knowledge or evidence for nursing intervention. The research should be conducted in any of the critical care 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: 6-9 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}

VII. Assessment (Formative and Summative)

- Seminar
- Written assignments/Term papers
- Case/Clinical presentation
- Clinical or care pathway/Case study report
- Clinical performance evaluation
- Log book- (Procedural Competency list and clinical requirements) counter signed by the medical/nursing faculty preceptor
- Objective Structured Clinical Examination (OSCE)
- Test papers
- Final examination

Assessment Guidelines: Appendix 2

Scheme of Final Examination

S. NO	Title	Theory %			Practical %		
		Hours	Internal	External	Hours	Internal	External
	I Year						
1	**I Year** **Core Courses** Theoretical Basis for Advanced Practice Nursing		50				
2	Research Application and Evidence Based Practice in Critical Care	3 hrs	30	70			
3	Advanced skills in Leadership, Management and Teaching	3 hrs	30	70			
4	**Advanced Practice Courses** Advanced Pathophysiology & Advanced Pharmacology relevant to Critical Care	3 hrs	30	70			

5	Advanced Health/physical Assessment	3 hrs	30	70		50	50
1	**II Year** **Specialty Courses** Foundations of Critical Care Nursing Practice	3 hrs	30	70		100	100
2	Critical Care Nursing I	3 hrs	30	70		100	100
3	Critical Care Nursing II	3 hrs	30	70		100	100
4	Dissertation and viva					50	50

VIII. COURSES OF INSTRUCTION

		Theory (Hrs)	Lab/Skill Lab (Hrs)	Clinical (Hrs)
I Year				
	Core Courses			
I	Theoretical Basis for Advanced Practice Nursing	40		
II	Research Application and Evidence Based Practice in Critical Care	56	24	**336** 7wks
III	Advanced skills in Leadership, Management and Teaching Skills	56	24	**192** 4wks
	Advanced Practice Courses			
IV	Advanced Pathophysiology applied to Critical Care	60		**336** 7wks
V	Advanced Pharmacology applied to Critical Care	54		**336** 7wks
VI	Advanced Health/physical Assessment	70	48	**576** 12wks
TOTAL= 2208hrs		336 (7wks)	96 (2wks)	1776 (37wks)

II year				
VII	**Specialty Courses** Foundations of Critical Care Nursing Practice	96	48	**576** 12wks
VIII	Critical Care Nursing I	96	48	**576** 12wks
IX	Critical Care Nursing II	96	48	**624** 13wks
TOTAL=2208hrs		288 (6wks)	144 (3wks)	1776 (37wks)

No of weeks available in an year =52 -6 (Annual leave, Casual leave, sick leave = 6 weeks) =46 weeks x 48 hrs = 2208 hrs (Examination during clinical posting)

Two years = 4416 hrs

Instructional Hours: Theory = 624hrs, Skill lab= 240hrs, Clinical =3552hrs

TOTAL= 4416 hrs

I year: 336-96-1776hrs (Theory-practicum) [Theory =15%, Practicum=85%]

II year : 288-144-1776hrs (,, ,,) [Theory =15%, Practicum=85%]

I YEAR =46 weeks/ 2208 hrs(46x48hrs)(Theory +Lab :7.5 hrs/week for 44wks =336+96 hrs*)

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

II YEAR=46 weeks/ 2208 hrs(46x48hrs) (Theory +Lab : 8.5hrs/week for 45wks=384+48hrs)

(1 week Block classes = 48 hrs)

CLINICAL PRACTICE

A. **Clinical Residency experience** (A minimum of 48 hrs/ 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:

I year: 44 wks (excludes 2 weeks of introductory block classes and workshop)
Medical ICU – 12 weeks (Includes hematology posting)
Surgical ICU – 12 weeks (Includes OT posting)

Cardio/Cardio thoracic (CT) ICU – 8 weeks
Emergency Department - 6 weeks (Includes Trauma)
Other ICUs - 6 weeks

{Other ICUs: Neuro-2wks, Burns & Dialysis-1wk, Neonatal & Pediatric ICU-2wks, OBS&Gynae-1wk}

II Year: 45wks (Excludes one week of block classes)

Medical ICU – 12 weeks (Includes hematology & Dialysis unit)
Surgical ICU – 12 weeks (Includes OT & Burns)
Cardio/Cardio thoracic (CT) ICU – 8 weeks
Emergency Department - 8 weeks (Includes Trauma & Disaster)
Other ICUs - 5 weeks

{Other ICUs: Neonatal & Pediatric-2 wks, Neuro-2wks, OBS & Gynae-1wk}

C. Teaching methods:

Teaching-theoretical, lab & Clinical can be done in the following methods and integrated during clinical posting

- Clinical conference
- Case/clinical presentation
- In depth drug study, presentation and report
- Nursing rounds
- Clinical seminars
- Journal clubs
- Case study/Clinical or care pathway
- Advanced health assessment
- Faculty lecture in the clinical area
- Directed reading
- Assignments
- Case study analysis
- Workshops

D. Procedures/log book

At the end of each clinical posting, clinical log book (Specific procedural competencies/Clinical skills) (Appendix 3) and clinical requirements (Appendix 4) have to be signed by the preceptor every fortnight.

E. NP Critical Care Competencies (Adapted from ICN, 2005)

1. Uses advanced comprehensive assessment, diagnostic, treatment planning, implementation and evaluation skills
2. Applies and adapts advanced skills in complex and / or unstable environments

3. Applies sound advanced clinical reasoning and decision making to inform, guide and teach in practice
4. Documents assessment, diagnosis, management and monitors treatment and follow-up care in partnership with the patient
5. Administer drugs and treatments according to institutional protocols
6. Uses applicable communication, counseling, advocacy and interpersonal skills to initiate, develop and discontinue therapeutic relationships
7. Refers to and accepts referrals from other health care professionals to maintain continuity of care
8. Practices independently where authorized and the regulatory framework allows in the interest of the patients, families and communities
9. Consults with and is consulted by other health care professionals and others
10. Works in collaboration with health team members in the interest of the patient
11. Develops a practice that is based on current scientific evidence and incorporated into the health management of patients, families and communities
12. Introduces, tests, evaluates and manages evidence based practice
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 responsibility
15. Accepts accountability and responsibility for own advanced professional judgement, actions, and continued competence
16. Creates and maintains a safe therapeutic environment through the use of 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. <u>Institutional Protocol/standing orders based administration of drugs & ordering of investigations and therapies</u>

The students will be trained to independently administer drugs and 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 physician and endorsed later by written orders.

Implementation of curriculum-A tentative plan

I yr. Courses	Introductory classes	Workshop	Theory integrated in clinical practicum	Methods of teaching (Topic can be specified)
1. Theoretical basis for Advanced practice Nursing (40)	8hrs		1x32=32hrs	• Seminar / Theory application Lecture (faculty)
2. Research Application and Evidence Based Practice in Critical Care (56+24)	8hrs	40 (5days) +8hrs	1x24=24hrs	• Research study analysis/ Exercise / Assignment (lab)
3. Advanced skills in leadership, Management and Teaching (56+24)	12+2hrs		1x26=26hrs 2.5x16=40hrs	• Clinical conference • Seminar Exercises/Assignment (lab)
4. Advanced Pathophysiology (60)			1.5x40=60hrs	• Case presentation • Seminar Clinical conference
5. Advanced Pharmacology (54)	10hrs		1x44=44hrs	• Nursing rounds • Drug study presentation Standing orders / presentation
6. Advanced Health Assessment (70+48)	8hrs		2x26=52hrs 1.5x18=27hrs 1x15=15hrs 2x6=12hrs 2x2=4hrs	• Clinical demonstration (faculty) • Return demonstration • Nursing rounds • Physical assessment (all systems) Case study
TOTAL	48hrs	48hrs	336hrs	

I year – Introductory classes= 1 week (48hrs), Workshop = 1 week(48hrs) ,44 weeks= 7.5 hrs/week (330/336hrs)

II year courses 1wk Block classes (48hrs)	Theory integrated into clinical practicum	Methods of teaching
Foundations (96+48hrs) =144hrs	9hrs x11wks=99hrs	• Demonstration (lab) • Return demonstration (lab)

		• Clinical teaching • Case study • Seminar • Clinical conference • Faculty lecture
2. Critical Care Nursing 96+48hrs) =144hrs	9x16=144hrs --------	• Demonstration (lab) • Return Demonstration (lab) • Clinical conference / journal club • Seminar • Case presentation • Drug study(including drug interaction) • Nursing rounds • Faculty lecture
3. Critical Care Nursing II 96+48hrs) =144hrs	9x16=144hrs	• Demonstration (lab) • Return Demonstration • Nursing rounds • Clinical conference / journal club • Seminar • Faculty lecture

II year: Block classes-1wk, 45 wks – 8.5/9hrs/wk

Attendance: 100% in theory, practical and clinical.

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 critical care
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 critical 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/carc pathways or clinical pathways
10. Applies the knowledge of nursing theories in providing competent care to critically ill patients
11. Predicts future challenges of nurse practitioner's roles in variety of healthcare settings particularly in India

Hours of instruction: 40hrs.

Sl.No.	Topic	Hours
1.	Global Health Care Challenges and Trends(Competency-1)	2
2.	Health System 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(Competency- 4)	4
5.	Health Information system including Nursing Informatics (use of computers)(Competency-5)	4
	Advanced Nursing Practice (ANP)	
6.	ANP-Definition, Scope, Philosophy, Accountability, Roles & Responsibilities	3

Sl.No.	Topic	Hours
	(Collaborative practice and Nurse Prescribing roles)(Competency-6&7)	
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 analyse 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 various ICUS in you tertiary centre	
	Total	**40 hrs.**

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Barkers,A.M.(2009). Advanced Practice Nursing. Massachussets: Jones & Bartlett Publishers

Hickey, J. V., Ouimette, R. M., & Venegoni, S. L. (1996).*Advanced practice nursing: Changing roles and clinical applications*. Philadelphia: Lippincott Williams and Wilkins.

Schober, M., & Affara, F. A. (2006).*Advanced nursing practice.* Oxford: Blackwell publishing.

Stewart,G.J.,& Denisco,S.M.(2015).Role Development for the Nurse Practitioner. USA: Springer Publishing Company

II. Research Application and Evidence Based Practice in Critical Care

COMPETENCIES

1. Applies sound research knowledge and skills in conducting independent research in critical care setting
2. Participates in collaborative research to improve patient care quality
3. Interprets and uses research findings in advanced practice to produce EBP
4. Tests / Evaluates current practice to develop best practices and health outcomes and quality care in advanced practice
5. Analyzes the evidence for nursing interventions carried out in critical care 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: 24hrs) =80hrs

Sl.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) **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 ICU environment - Areas of evidence in critical care - Barriers to implement EBP - Strategies to promote EBP (Competency – 3,4,5)	4
	Total	**56hrs.**

Practical / Lab & Assignments- 24hrs

- Identifying research priorities
- Writing exercises on Research question, objectives and hypothesis
- Writing research proposal
- Scientific paper writing – preparation of manuscript for publication
- Writing systematic review/literature review – Analyze the evidence for a given nursing intervention in ICU

Practicum

- Research practicum: Dissertation (336 hrs=7weeks)

Bibliography:

Burns, N., & Grove, S. K. (2011).*Understanding nursing research: Building an evidence-based practice* (5th ed.). Ist Indian reprint 2012, New Delhi: Elsevier.

Polit, D. F., & Beck, C. T. (2012).*Nursing research:Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia: Lippincott Williams & Wilkins.

Schmidt, N. A., & Brown, J. M. (2009). Evidence – based practice for nurses appraisal and application of research. Sd: Jones and Bartlet Publishers.

III. Advanced skills in Leadership, Management and Teaching

COMPETENCIES

1. Applies principles of leadership and management in critical care units
2. Manages stress and conflicts effectively in a critical 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 patient care in ICU
5. Builds teams and motivates others in ICU 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 of teaching
9. Develops advocacy role in patient care, maintaining quality and ethics in ICU environment
10. Provides counseling to families and patients in crisis situations particularly end of life care

Hours of Instruction –(56+24=80Hrs)

Sl.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 critical care settings	4
4.	Stress management and conflict management – principles and application to critical care environment, Effective time management	4
5.	Quality improvement and audit	4
6.	Problem solving, critical thinking and decision making, communication skills applied to critical care nursing practice	5
7.	Team building, motivating and mentoring within ICU set up	2
8.	Budgeting and management of resources including human resources – ICU budget, material management, staffing, assignments	5

Sl.No.	Topic	Hours
9.	Change and innovation	2
10.	Staff performance, and evaluation (performance appraisals)	6
11.	Teaching – Learning theories and principles applied to Critical Care Nursing	2
12.	Competency based education and outcome based education	2
13.	Teaching methods / strategies, media: educating patients and staff in Critical Care settings	8
14.	Staff education and use of tools in evaluation	4
15.	APN – Roles as a teacher	2
16.	Advocacy roles in critical care environment	2
	Total	56 hrs.

Practical / Lab = 24 hrs.

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 - ICU work place violence

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Advanced Nursing Courses

IV. A. Advanced Pathophysiology Applied to Critical Care Nursing

COMPETENCIES

- Integrates the knowledge of pathopysiological process in critical conditions in developing diagnosis and plan of care
- Applies the pathophysiogical principles in symptom management and secondary prevention of critical illnesses
- Analyzes the pathophysiological changes relevant to each critical illness recognizing the value of diagnosis, treatment, care and prognosis

Hours of instruction: Theory: 30 hours

Unit	Hours	Content
I	(8)	**1. Cardiovascular function** Advanced pathophysiological process of cardiovascular conditions • Hypertensive disorder • Peripheral artery disorder • Venous disorders • Coronary artery diseases • Valvular heart disease • Cardiomyopathy and heart failure • Cardiac Tamponade • Arrythmias • Corpumonale • Heart block and conduction disturbances
	(4)	**2. Pulmonary function** Advanced pathophysiological process of pulmonary conditions • Chronic obstructive pulmonary disease • Disorders of the pulmonary vasculature • Infectious diseases • Respiratory failure • Chest trauma
	(6)	**3. Neurological function**

		Advanced pathophysiological process of neurological conditions • Seizure disorder • Cerebrovascular disease • Infections • Spinal cord disorder • Degenerative neurological diseases • Neurological trauma • Coma, unconsciousness
	(4)	**4. Renal function** Advanced pathophysiological process of renal conditions • Acute renal failure • Chronic renal failure • Bladder trauma • Infections(Glomerulonephritis) • Nephrotic syndrome
	(4)	**5. Gastrointestinal and hepatobiliary function** Advanced pathophysiological process of hepatobiliary conditions • Gastrointestinal bleeding • Intestinal obstruction • Pancreatitis • Hepatic failure • Gastrointestinal perforation
	(4)	**6. Endocrine functions** Advanced pathophysiological process of endocrine conditions • Diabetic ketoacidosis • Hyperosmolar non ketotic coma • Hypoglycemia • Thyroid storm • Myxedema coma • Adrenal crisis • Syndrome of inappropriate antidiuretic hormone secretion

IV.B. Advanced Pathophysiology Applied to Critical Care Nursing

Hours of instruction Theory: 30 hours

Unit	Hours	Content
I	(8)	**1. Hematological function** Advanced pathophysiological process of hematological conditions • Disorders of red blood cells - Polycythemia - Anemia - Sickle cell diseases • Disorders of white blood cells - Leucopenia - Neoplastic disorders • Disorders of hemostasis - Platelet disorders - Coagulation disorders - Disseminated intravascular coagulation
II	(2)	**2. Integumenatry function** Advanced pathophysiological process of integumentary conditions • Wound healing • Burns • Steven Johnson Syndrome
III	(8)	**3. Multisystem dysfunction** Advanced pathophysiological process of neurological conditions • Shock - Hypovolemic - Cardiogenic - Distributive • Systemic inflammatory syndrome • Multiple organ dysfunction syndrome • Trauma - Thoracic - Abdominal - Musculoskeletal - maxillofacial • Drug overdose and poisoning • Envenomation

Unit	Hours	Content
IV	(6)	**4. Specific infections** Advanced pathophysiological process of specific infections • HIV • Tetanus • SARS • Rickettsiosis • Leptospirosis • Dengue • Malaria • Chickungunya • Rabies • Avian flu • Swine flu
V	(6)	**5. Reproductive functions** Advanced pathophysiological process of reproductive conditions • Antepartum hemorrhage • Pregnancy induced hypertension • Obstructed labour • Ruptured uterus • Postpartum hemorrhage • Puerperal sepsis • Amniotic fluid embolism • HELLP (Hemolysis, Elevated Liver enzymes, Low Platelet Count) • Trauma

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V. Advanced Pharmacology relevant to Critical Care Nursing

COMPETENCIES

- Applies the pharmacological principles in providing care to critically ill patients and families
- Analyzes pharmaco-therapeutics and pharmacodynamics relevant to drugs used in the treatment of critical care conditions
- Performs safe drug administration based on principles and institutional protocols
- Documents accurately and provides follow up care
- Applies sound knowledge of drug interactions in administration of drugs to critically ill patients in the critical care settings and guiding their families in self care management

Hours of instruction Theory: 54 hours

Unit	Hours	Content
I	2	**Introduction to pharmacology in critical care** • History • Classification of drugs and schedules
II	4	**Pharmacokinetics and Pharmaco-dynamics** • Introduction • Absorption, Distribution, Metabolism, Distribution 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 ▪ The rights of drug administration ▪ Systems of measurement ▪ Enteral drug administration ▪ Topical drug administration ▪ Parentral drug administration
III	5	**Pharmacology and Cardiovascular alterations in Critical care** • Vasoactive Medications ▪ Vasodilator, ▪ Vasopressor, ▪ Inotropes ✓ Cardiac glycosides – digoxin ✓ Sympathomimetics – Dopamine, dobutamine, epinephrine, isoproterenol, norepinephrine, phenylephrine

Unit	Hours	Content
		✓ Phosphodiesterase inhibitors – amrinone, milrinone • Antiarrhythmic Medications • Cardiac critical care conditions ▪ Medications to improve cardiac contractility ▪ Medications in the management of hypertension in critical care ▪ Medications in the management of heart failure ▪ Medications in the management of angina pectoris and myocardial infarction ▪ Medications in the management of dysrhythmias, Heart block and conduction disturbances ▪ Medications in the management of Pulmonary hypertension, Valvular heart disease, Cardiomypathy ▪ Medications in the management of Atherosclerotic disease of aorta and Peripheral artery disease ▪ Medications in the management of Deep vein thrombosis • Institutional Protocols/Standing orders for cardiac critical care emergencies
IV	4	**Pharmacology and Pulmonary alterations in Critical care** • Mechanical Ventilation ▪ Introduction ▪ Medications used on patients with mechanical ventilator ▪ Mechanical ventilation impact on pharmacotherapy – Sedation and analgesia, Neuromucsular blockade, Nutrition • Pulmonary critical care conditions • Medications in the management of Status asthmaticus • Medications in the management of Pulmonary edema • Medications in the management of Pulmonary embolism • Medications in the management of Acute respiratory failure and Acute respiratory distress syndrome • Medications in the management of Chest trauma • Medications in the management of Chronic obstructive pulmonary disease • Medications in the management of Pneumonia • Medications in the management of Pleural effusion • Medications in the management of Atelectasis • Standing orders for pulmonary critical care emergencies
V	6	**Pharmacology and Neurological alterations in Critical care** • Pain ▪ NSAID ▪ Opioid analgesia • Sedation ▪ Gamma amino butyric acid stimulants

Unit	Hours	Content
		▪ Dexmeditomidine ▪ Analgosedation • Delirium ▪ Haloperidol ▪ Atypical anti psychotics • Medications used for local and general anesthesia • Local- Amides, esters, and miscellaneous agents • General – Gases, Volatile liquids, IV anesthetics • Non anesthetic drugs adjuncts to surgery ▪ Paralytic Medications ▪ Non-depolarizing and depolarizing agents ▪ Anxiolytics • Autonomic drugs ▪ Adrenergic agents/ Sympathomimetics ▪ Adrenergic blocking agents ▪ Cholinergic agents ▪ Anti cholinergic agents • Medications in the management of anxiety and insomnia ▪ Antidepressants ▪ Benzodiazepines ▪ Barbiturates • Neurological critical care conditions ▪ Medications in the management of psychoses ▪ Medications in the management of acute head and spinal cord injury with elevated intracranial pressure ▪ Medications in the management of muscle spasm ▪ Medications in the management of spasticity ▪ Medications in the management of Cerebro vascular disease and cerebro vascular accident ▪ Medications in the management of Encephalopathy ▪ Medications in the management of Gillian Bare syndrome and Myasthenia gravis ▪ Medications in the management of Brain herniation syndrome ▪ Medications in the management of Seizure disorder ▪ Medications in the management of Coma, Unconsciousness and persistent vegetative state ▪ Appropriate nursing care to safeguard patient ▪ Standing orders for neurology critical care emergencies
VI	5	**Pharmacology and Nephrology alterations in Critical care** • Diuretics • Fluid replacement ▪ Crystalloids ▪ Colloids

Unit	Hours	Content
		• Electrolytes ▪ Sodium ▪ Potassium ▪ Calcium ▪ Magnesium ▪ Phosphorus • Nephrology critical care conditions ▪ Medications in the management of Acute / Chronic renal failure ▪ Medications in the management of Acute tubular necrosis ▪ Medications in the management of Bladder trauma ▪ Medications in the management of Electrolyte imbalances ▪ Medications in the management of Acid base imbalances ▪ Medications used during dialysis • Standing orders for nephrology critical care emergencies
VII	5	**Pharmacology and Gastrointestinal alterations in Critical care** • Anti-ulcer drugs • Laxatives • Anti diarrheals • Anti emetics • Pancreatic enzymes • Nutritional supplements, Vitamins and minerals • Gastro intestinal critical care conditions ▪ Medications in the management of Acute GI bleeding, Hepatic failure ▪ Medications in the management of Acute pancreatitis ▪ Medications in the management of Abdominal injury ▪ Medications in the management of Hepatic encephalopathy • Medications in the management of Acute intestinal obstruction • Medications in the management of Perforative peritonitis • Medications used during Gastrointestinal surgeries and Liver transplant • Standing orders for gastro intestinal critical care emergencies
VIII	4	**Pharmacology and Endocrine alterations in Critical care** • Hormonal therapy • Insulin and Other hypoglycemic agents • Endocrine critical care conditions ▪ Medications in the management of Diabetic ketoacidosis, Hyperosmolar non ketotic coma ▪ Medications in the management of hypoglycemia

Unit	Hours	Content
		▪ Medications in the management of Thyroid storm ▪ Medications in the management of Myxedema coma ▪ Medications in the management of Adrenal crisis ▪ Medications in the management of SIADH • Standing orders for endocrine critical care emergencies
IX	5	**Pharmacology and Hematology alterations in Critical care** • Anticoagulants • Antiplatelet drugs • Thrombolytics • Hemostatics/ antifibrinolytics • Hematopoietic growth factors ▪ Erythropoietin ▪ Colony stimulating factors ▪ Platelet enhancers • Blood and blood products ▪ Whole blood, Packed red blood cells, Leukocyte-reduced red cells, Washed red blood cells, Fresh frozen plasma, Cryoprecipitate ▪ Albumin ▪ Transfusion reactions, Transfusion administration process • Vaccines • Immunostimulants • Immunosuppressant • Chemotherapeutic drugs – Alkylating agents, anti metabolites, anti tumor antibiotics, alkaloids, hormones and hormone antagonist, corticosteroids, gonadal hormones, anti estrogens, androgen antagonists, biologic response modifiers • Hematology critical care conditions ▪ Medications in the management of Anemia in critical illness ▪ Medications in the management of DIC ▪ Medications in the management of Thrombocytopenia and acute leukemia ▪ Medications in the management of Heparin induced thrombocytopenia ▪ Medications in the management of Sickle cell anemia ▪ Medications in the management of Tumor lysis syndrome • Standing orders for hematology critical care emergencies
X	3	**Pharmacology and Skin alterations in Critical care** • Hematology critical care conditions ▪ Medications used in burn management ▪ Medications used in wound management • Standing orders for skin critical care emergencies
XI	5	**Pharmacology and Multisystem alterations in Critical care**

Unit	Hours	Content
		• Medications in the management of shock, sepsis, Multiple Organ Dysfunction, Systemic inflammatory response syndrome, Anaphylaxis • Medications in the management of Trauma, Injuries (Heat, Electrical, Near Hanging, Near drowning) • Medications in the management of bites, Drug overdose and Poisoning • Medications in the management of fever in critical care setting ▪ Antipyretics ▪ NSAIDS ▪ Corticosteroids • Standing orders for multi system critical care emergencies
XII	6	**Pharmacology and Infections in Critical care** • Antibacterial drugs ▪ Introduction ▪ Beta lactams – Penicillins, cephalosporins, monobactams, carbapenams, ▪ Aminoglycosides ▪ Anti MRSA ▪ Macrolides ▪ Quinolones ▪ Miscellaneous – lincosamide group, nitroimidazole, tetracyclins and chloramphenicol, polymyxins, anti malarials, anti fungals, anti virals • Anti fungal drugs • Anti protozoal drugs • Anti viral drugs • Choice of antimicrobials • Infectious critical care conditions ▪ Medications in the management of HIV, Tetanus, SARS, Rickettsiosis, Leptospirosis, Dengue, Malaria, Chickungunya, Rabies, Avian flu and Swine flu • Standing orders for infectious critical care emergencies

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VI. Advanced Health/Physical Assessment in Critical Care Nursing

COMPETENCIES

- Applies the physical assessment principles in developing appropriate system wise examination skills
- Uses advanced health assessment skills to differentiate between variations of normal and abnormal findings
- Orders screening and diagnostic tests based on the examination findings and institutional protocols
- Analyzes the physical examination findings and results of various investigations and works collaboratively with intensivists for development of diagnoses
- Documents assessment, diagnosis, and management and monitors follow up care in partnership with health care team members, patients, and families

Hours of instruction

Theory: 70 hours

Practical/Lab: 48 hours

Unit	Hours	Content
	(4)	**1. Introduction** • History taking • Physical examination
	(6)	**2. Cardiovascular system** • Cardiac history • Physical examination • Cardiac laboratory studies – biochemical markers, hematological studies • Cardiac diagnostic studies – Electrocardiogram, echocardiography, stress testing, radiological imaging
	(6)	**3. Respiratory system** • History • Physical examination • Respiratory monitoring – Arterial blood gases, pulse oximetry, end-tidal carbondioxide monitoring • Respiratory Diagnostic tests – Chest radiography, ventilation perfusion scanning, pulmonary angiography, bronchoscopy, thoracentesis, sputum culture, pulmonary function test

Unit	Hours	Content
	(6)	**4. Nervous system** • Neurological history • General physical examination • Assessment of cognitive function • Assessment of cranial nerve function • Motor assessment – muscle strength, power, and reflexes • Sensory assessment – dermatome assessment • Neurodiagnostic studies – CT scan, MRI, PET
	(6)	**5. Renal system** • History • Physical examination • Assessment of renal function • Assessment of electrolytes and acid base balance • Assessment of fluid balance
	(4)	**6. Gastrointestinal system** • History • Physical examination • Nutritional assessment • Laboratory studies – Liver function studies, blood parameters, stool test • Diagnostic studies – radiological and imaging studies, endoscopic studies
	(4)	**7. Endocrine system** • History, physical examination, laboratory studies, and diagnostic studies of - Hypothalamus and pituitary gland - Thyroid gland - Parathyroid gland - Endocrine gland - Adrenal gland
	(4)	**8. Hematological system** • History • Physical examination • Laboratory studies - blood parameters • Diagnostic studies – bone marrow aspiration
	(3)	**9. Integumentary system** • History • Physical examination • Pathological examination – tissue examination

Unit	Hours	Content
	(6)	**10. Musculoskeletal system** • History • Physical examination – gait assessment, joint assessment, • Laboratory studies – blood parameters (inflammatory enzymes, uric acid) • Diagnostic studies - Radiological and imaging studies, endoscopic studies
	(5)	**11. Reproductive system(Male & Female)** • History • Physical examination • Laboratory studies • Diagnostic studies
	(4)	**12. Sensory Organs** • History • Physical examination • Laboratory studies • Diagnostic studies - Radiological and imaging studies, endoscopic studies
	(6)	**13. Assessment of children** • Growth and development • Nutritional assessment • Specific system assessment
	(6)	**14. Assessment of older adults** • History • Physical assessment • Psychological assessment

List of skills to be practiced in the skill lab (46 hours include demonstration by the faculty and practice by the students)

- Comprehensive history taking
- Focused history taking (system wise)
- Comprehensive physical examination
- Focused physical examination (system wise)
- Monitoring clinical parameters (system wise)
  Invasive BP monitoring, Multi-parameter Monitors, ECG, Pulse index Continuous Cardiac Output (PiCCO), Peripheral vascular status, ABG, Pulse Oximetry, End Tidal

CO2 (ETCO2), Intracranial Pressure (ICP), Glasgow Coma Scale (GCS), Cranial nerve assessment, Pain and Sedation score of critically ill, Motor assessment, Sensory assessment, Renal function tests, Fluid balance, acid base balance, electrolytes, Bowel sounds, Abdominal pressure, Residual gastric volume, Liver function tests, GRBS, Lab tests, Radiological and Imaging tests(system wise)

- Ordering and interpretation of screening and diagnostic tests (system wise) (Enclosed- Appendix 3)
- Assessment of children-neonate and child
- Assessment of Older adults
- Assessment of pregnant women

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Critical care specialty courses

(Foundations of Critical Care Nursing Practice, Critical Care Nursing I and Critical Care Nursing II)

COMPETENCIES

- Applies advanced concepts of critical care nursing based on sound knowledge of these concepts
- Uses invasive and noninvasive technology and interventions to assess, monitor and promote physiologic stability
- Works in collaboration with other healthcare team members and prepares care/clinical pathways in assessment and management of patients with critical conditions
- Consults with and is consulted by other health care professionals
- Provides nursing care related to health protection, disease prevention, anticipatory guidance, counseling, management of critical illness, palliative care and end of life care
- Uses advanced skills in complex and unstable environments
- Applies ethically sound solutions to complex issues related to individuals, populations and systems of care
- Practices principles of infection control relevant to critical care
- Practices independently within the legal framework of the country towards the interest of patients, families and communities
- Develops practice that is based on scientific evidence
- Uses applicable communication, counseling, advocacy and interpersonal skills to initiate , develop and discontinue therapeutic relationships
- Creates and maintains a safe therapeutic environment using risk management strategies and quality improvement
- Adapts practice to the social, cultural and contextual milieu

VII. Foundations of Critical Care Nursing Practice

Hours of instruction: Theory: 96 hours, Practical/skill lab: 48 hours

Unit	Hours	Content
I	10	**Introduction to Critical Care Nursing** • 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- Progressive patient care(PPC) • Concepts of critical care nursing • Principles of critical care nursing • Scope of critical care nursing • Critical care unit set up (including types of ICU, equipment, supplies, beds and accessories, use and care of various type of monitors & ventilators, Flow sheets, supply lines and the environment) • Personnel in ICU ➢ Nursing staff ➢ Doctors ➢ Critical care technicians ➢ Ancillary staff • Technology in critical care • Healthy work environment • Future challenges in critical care nursing
II	5	**Concept of Holistic care applied to critical care nursing practice** • Application of nursing process and integrated care/clinical pathways in the care of critically ill • Admission and progress in ICU- An overall view • Overview of ICU Management ➢ Ensure adequate tissue oxygenation ➢ Maintain chemical environment ➢ Maintain temperature ➢ Organ protection ➢ Nutritional support ➢ Infection control ➢ Physiotherapy and rehabilitation ➢ Family visiting hours • Restraints in critical care – physical, chemical and alternatives to restraints • Death in critical care unit: End of life care/Care of dying, care of family, organ donation • Transport of the critically ill – By air ambulance and surface ambulance • Stress and burnout syndrome among health team members

III	10	**Appraisal of the critically ill** ***Triaging concept, process and principles*** ***Assessment of the critically ill*** • General assessment • Respiratory assessment • Cardiac assessment • Renal assessment • Neurological assessment • Gastrointestinal assessment • Endocrine assessment • Musculoskeletal assessment • Integumentary assessment ***Monitoring of the critically ill*** • Arterial blood gas (ABG) • Capnography • Hemodynamics • Electrocardiography (ECG) • Glasgow Coma Scale (GCS) • Richmond agitation sedation scale (RASS) • Pain score • Braden score ***Evaluation of the critically ill*** • Evaluation of pre critical illness • Evaluation of critical illness • Outcome and scoring systems ➢ Acute Physiology and Chronic Health Evaluation (APACHE I-IV) ➢ Mortality probability model (MPM I, II) ➢ Simplified acute physiology score (SAPS I, II) ➢ Organ system failure ➢ Full outline of unresponsiveness (FOUR) ➢ Model for end-stage liver disease (MELD)
IV	14	**Advanced Concepts and Principles of Critical Care** • Principles of cardio-pulmonary-brain resuscitation • Emergencies in critical care : CPR ➢ BLS ➢ ACLS • Airway management • Oxygenation and oximetry, care of patient with oxygen delivery devices • Ventilation and ventilator support (including humidification and inhaled drug therapy), care of patient with invasive and non invasive ventilation • Circulation and perfusion (including hemodynamic evaluation and waveform graphics)

		• Fluids and electrolytes (review), care of patient with imbalances of fluid and electrolytes • Evaluation of acid base status • Thermoregulation, care of patient with hyper/hypo-thermia • Liberation from life support (Weaning) • Glycemic control, care of patient with glycemic imbalances
V	8	**Pain and Management** • 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, Tranquilisers, Neuromuscular blocking agents) • Nonpharmacological management • Transcutaneous electrical nerve stimulation(TENS)
VI	8	**-Psychosocial and spiritual alterations: Assessment and management** • Stress and psychoneuroimmunology • Post traumatic stress reaction • ICU Psychosis, Anxiety, Agitation, Delirium • Alcohol withdrawal syndrome and delirium tremens • Collaborative management • Sedation and Relaxants • Spiritual challenges in critical care • Coping with stress and illness • Care of family of the critically ill • Counseling and communication
VII	4	**Patient and family education and counseling** • Challenges of patient and family education • Process of adult learning • Factors affecting teaching learning process • Informational needs of families in critical care • Counseling needs of patient and family • Counseling techniques
VIII	5	**Nutrition Alterations and Management in critical care** • Nutrient metabolism and alterations • Assessing nutritional status • Nutrition support • Nutrition and systemic alterations • Care of patient on enteral and parenteral nutrition

IX	4	**Sleep alterations and management** • Normal human sleep • Sleep pattern disturbance • Sleep apnea syndrome
X	5	**Infection control in critical care** • 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
XI	6	**Legal and ethical issues in critical care-Nurse's role** *Legal issues* • 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 *Ethical Issues* • Difference between morals and ethics • Ethical principles, ethical decision making in critical care, Strategies for promoting ethical decision making Ethical issues relevant to critical care : • withholding and withdrawing treatment, • Managing Scarce resource in critical care • Brain death, Organ donation & Counseling, • Do Not Resuscitate(DNR), Euthanasia, Living will **Nurses' Role**
XII	8	**Quality assurance** • Design of ICU/CCU • Quality assurance models applicable to ICUs • Standards, Protocols, Policies, Procedures • Infection control policies and protocols • Standard safety measures • Nursing audit relevant to critical care • Staffing

XIII	3	**Evidence based practice in critical care nursing** • Evidence based practice in critical care • Barriers to implementation • Strategies to promote implementation
	5	**Class tests**
Total	96	

List of skills to be practiced in the skill lab (46 hours include demonstration by the faculty and practice by the students)

- CPR (BLS and ACLS)
- Airway Management
  - Laryngeal mask airway
  - Cuff inflation and anchoring the tube
  - Care of ET tube
  - Tracheostomy care
  - Suctioning – open/closed
  - Chest physiotherapy
- Oxygenation and oximetry, care of patient with oxygen delivery devices
  - Devices to measure oxygen/oxygenation
    - ✓ Fuel cell
    - ✓ Para magnetic oxygen analyzer
    - ✓ PO2 electrodes-Clark electrodes
    - ✓ Transcutaneous oxygen electrodes
    - ✓ Oximetry – Pulse oximetry, Venous oximetry
  - Capnography
  - Non invasive ventilation
    - ✓ Low flow variable performance devices: nasal catheters/cannulae/double nasal prongs, face mask with reservoir bags
    - ✓ High flow fixed performance devices : Entrainment (Venturi) devices, NIV/CPAP/Anesthetic masks, T pieces, breathing circuits
  - Postural drainage
- Ventilation and ventilator support
  - Connecting to ventilator
  - Weaning from ventilator
  - Extubation
  - Humidifiers
  - Nebulizers – jet, ultrasonic
  - Inhalation therapy – metered dose inhalers (MDI), dry powder inhalers (DPI)
- Circulation and perfusion (including hemodynamic evaluation and waveform graphics)
  - Invasive blood pressure 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
    - Cardiac glycosides – Digoxin
    - Sympathomimetics – Dopamine, dobutamine, epinephrine, isoproterenol, norepinephrine, phenylephrine
    - Phosphodiesterase inhibitors – amrinone, milrinone
  - Electrolyte correction (Sodium, potassium, calcium, phosphrous, magnesium)
  - Use of fluid dispenser and infusion pumps
- Evaluation of acid base status
  - Arterial blood gas (ABG)
- Thermoregulation, care of patient with hyper/hypothermia
  - Temperature probes
  - Critical care management of hyper and hypothermia
- 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
- Pharmacological management of pain, sedation, agitation, and delirium
  - Calculation, loading and infusion of – Morphine, Fentanyl, Midazolam, Lorazepam, Diazepam, Propofol, Clonidine, Desmedetomidine, Haloperidol
  - 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
- Counseling
- Family education

VIII. Critical Care Nursing I

Hours of instruction: Theory: 96 hours, Practical: 48hours

Unit	Hours	Content
I	6	**Introduction** • Review of anatomy and physiology of vital organs • Review of assessment and monitoring of the critically ill
II	16	**Cardiovascular alterations** • Review of Clinical assessment, pathophysiology, and pharmacology • Special diagnostic studies • Cardiovascular conditions requiring critical care management ➢ Hypertensive crisis ➢ Cardiac arrhythmias ➢ Heart block and conduction disturbances ➢ Coronary heart disease ➢ Myocardial infarction ➢ Pulmonary hypertension ➢ Valvular heart disease ➢ Atherosclerotic disease of aorta ➢ Peripheral artery disease ➢ Cardiomypathy ➢ Heart failure ➢ Deep vein thrombosis ➢ Congenital heart disease(cyanotic and acyanotic) • Cardiovascular therapeutic management ➢ Cardiac transplant ➢ Pacemakers ➢ Cardioversion ➢ Defibrillation ➢ Implantable cardiovert defibrillators, ➢ Thrombolytic therapy ➢ Radiofrequency catheter ablation ➢ Percutaneous Transluminal Coronary Angioplasty(PTCA) ➢ Cardiac surgery –Coronary artery bypass grafting(CABG)/ Minimally invasive coronary artery surgery)MICAS, Valvular surgery, vascular surgery ➢ Mechanical circulatory assistive devices – Intra aortic balloon pump ➢ Effects of cardiovascular medications ➢ Ventricular assist devices(VAD) ➢ Extra corporeal membrane oxygenation(ECMO) • Recent advances and development

III	15	**Pulmonary alterations**
		• Review of Clinical assessment, pathophysiology, and pharmacology
		• Special diagnostic studies
		• Pulmonary conditions requiring critical care management
		  • Status asthmaticus
		  • Pulmonary edema
		  • Pulmonary embolism
		  • Acute respiratory failure
		  • Acute respiratory distress syndrome
		  • Chest trauma
		  • Chronic obstructive pulmonary disease
		  • Pneumonia
		  • Pleural effusion
		  • Atlectasis
		  • Longterm mechanical ventilator dependence
		• Pulmonary therapeutic management
		  • Thoracic surgery
		  • Lung transplant
		  • Bronchial hygiene: Nebulization, deep breathing and coughing exercise, chest physiotherapy and postural drainage
		  • Chest tube insertion and care of patient with chest drainage
		• Recent advances and development

IV	15	**Neurological alterations**
		• Review of Clinical assessment, pathophysiology, and pharmacology
		• Special diagnostic studies
		• Neurological conditions requiring critical care management
		  • Cerebro vascular disease and cerebro vascular accident
		  • Encephalopathy
		  • Gillian Bare syndrome and Myasthenia gravis
		  • Brain herniation syndrome
		  • Seizure disorder
		  • Coma, Unconsciousness
		  • persistent vegetative state
		  • Head injury
		  • Spinal cord injury
		  • Thermoregulation
		• Neurologic therapeutic management
		  ➢ Intracranial pressure – Assessment and management of intracranial hypertension
		  ➢ Craniotomy
		• Recent advances and development

V	15	**Nephrology alterations**
		• Review of Clinical assessment, pathophysiology, and pharmacology
		• Special diagnostic studies
		• Nephrology conditions requiring critical care management
		  • Acute renal failure
		  • Chronic renal failure
		  • Acute tubular necrosis
		  • Bladder trauma
		• Nephrology therapeutic management
		  • Renal Replacement therapy: Dialysis
		  • Renal transplant
		• Recent advances and development

VI	12	**Gastrointestinal alterations**
		• Review of Clinical assessment, pathophysiology, and pharmacology
		• Special diagnostic studies
		• Gastrointestinal conditions requiring critical care management
		  • Acute GI bleeding
		  • Hepatic failure
		  • Acute pancreatitis
		  • Abdominal injury
		  • Hepatic encephalopathy
		  • Acute intestinal obstruction
		  • Perforative peritonitis
		• Gastrointestinal therapeutic management
		  • Gastrointestinal surgeries
		  • Liver transplant
		• Recent advances and development

VII	12	**Endocrine alterations**
		• Review of Clinical assessment, pathophysiology, and pharmacology
		• Special diagnostic studies
		• Endocrine conditions requiring critical care management
		  • Neuroendocrinology of stress and critical illness
		  • Diabetic ketoacidosis, Hyperosmolar non ketotic coma
		  • hypoglycemia
		  • Thyroid storm
		  • Myxedema coma
		  • Adrenal crisis
		  • SIADH
		• Endocrine therapeutic management
		• Recent advances and development

	5	**Class tests**
Total	96 hours	

List of skills to be practiced in the skill lab (69 hour include demonstration by the faculty and practice by the students).

- **Cardiovascular alterations**
  - Thrombolytic therapy
  - Use of equipment and their settings – Defibrillator, PiCCO), Pace makers, Intra aortic ballon pump(IABP)
- **Pulmonary alterations**
  - Tracheostomy Care
  - Nebulization
  - Chest physiotherapy
  - Chest tube insertion
  - Chest drainage
- **Neurological alterations**
  - Monitoring GCS
  - Conscious and coma monitoring
  - Monitoring ICP
  - Sedation score
  - Brain Death Evaluation
- **Nephrology alterations**
  - Dialysis
    - Priming of dialysis machine
    - Preparing patient for dialysis
    - Cannulating for dialysis
    - Starting and closing dialysis
- **Gastrointestinal alterations**
  - Abdominal pressure monitoring
  - Calculation of calorie and protein requirements
  - Special diets – sepsis, respiratory failure, renal failure, hepatic failure, cardiac failure, weaning, pancreatitis
  - Enteral feeding – NG/Gastrostomy/ Pharyngeal/Jejunostomy feeds
  - Total parenteral nutrition
- **Endocrine alterations**
  - Collection of blood samples for cortisol levels, sugar levels, and thyroid hormone levels
  - Calculation and administration of corticosteroids
  - Calculation and administration of Insulin – Review

IX. Critical Care Nursing - II

Hours of instruction: Theory: 96 hours, Practical: 48 hours

Unit	Hours	Content
I	12	**Hematological alterations** • Review of Clinical assessment, pathophysiology, and pharmacology • Special diagnostic studies • Hematology conditions requiring critical care management ➢ DIC ➢ Thrombocytopenia ➢ Heparin induced thrombocytopenia ➢ Sickle cell anemia ➢ Tumor lysis syndrome ➢ Anemia in critical illness • Hematology therapeutic management ➢ Autologus blood transfusion ➢ bone marrow transplantation • Recent advances and development
II	8	**Skin alterations** • Review of Clinical assessment, pathophysiology, and pharmacology • Special diagnostic studies • Conditions requiring critical care management ➢ Burns ➢ Wounds • Therapeutic management ➢ Reconstructive surgeries for burns ➢ Management of wounds • Recent advances and development
III	12	**Multi system alterations requiring critical care** • Trauma • Sepsis • Shock • Multiple Organ Dysfunction • Systemic inflammatory response syndrome • Anaphylaxis • DIC • Other injuries (Heat, Electrical, Near Hanging, Near drowning) • Envenomation • Drug overdose • Poisoning

IV	10	**Specific infections in critical care** • HIV • Tetanus • SARS • Rickettsiosis • Leptospirosis • Dengue • Malaria • Chickungunya • Rabies • Avian flu • Swine flu
V	9	**Critical care in Obstetrics** • Physiological changes in pregnancy • Conditions requiring critical care ➢ Antepartum hemorrhage ➢ PIH ➢ Obstructed labor ➢ Ruptured uterus ➢ PPH ➢ Puerperal sepsis ➢ Obstetrical shock ➢ HELLP syndrome ➢ DIC ➢ Amniotic fluid embolism ➢ ARDS ➢ Trauma
VI	10	**Critical care in children** • Prominent anatomical and physiological differences and implications • Conditions requiring critical care ➢ Asphyxia neonatarum ➢ Metabolic disorders ➢ Intracranial hemorrhage ➢ Neonatal sepsis ➢ Dehydration ➢ ARDS ➢ Poisoning ➢ Foreign bodies ➢ Seizures ➢ Status asthmaticus ➢ Cyanotic heart disease ➢ congenital hypertrophic pyloric stenosis ➢ Tracheoesophageal fistula ➢ imperforate anus

		➢ Acute bronchopneumonia ➢ Trauma in children • Selected pediatric challenges ➢ Ventilatory issue ➢ Medication administration ➢ Pain Management • Interaction with children and families
VII	10	**Critical Care in Older Adult** • Normal psycho biological characteristics of aging ➢ Biological issues ➢ Psychological issues ➢ Concepts and theories of ageing ➢ Stress & coping in older adults ➢ Common Health Problems & Nursing Management; • Physical challenges ➢ Auditory changes ➢ Visual changes ➢ Other sensory changes ➢ Skin changes ➢ Cardiovascular changes ➢ Respiratory changes ➢ Renal changes ➢ Gastro intestinal changes ➢ Musculoskeletal changes ➢ Endocrine changes ➢ Immunological changes • Psychological challenges ➢ Cognitive changes ➢ Abuse of the older person ➢ Alcohol abuse • Challenges in medication use ➢ Drug absorption ➢ Drug distribution ➢ Drug metabolism ➢ Drug excretion • Hospital associated risk factors for older adults • Long term complications of critical care ➢ Care transitions ➢ Palliative care and end of life in critical care
VIII	10	**Critical Care in Perianesthetic period** • Selection of anesthesia • General anesthesia • Anesthetic agents • Perianesthesia assessment and care • Post anesthesia problems and emergencies requiring critical care ➢ Respiratory-Airway obstruction, Laryngeal edema,

		Laryngospasm, Bronchospasm, Noncardiogenic pulmonary edema, Aspiration, Hypoxia, Hypoventilation ➢ Cardiovascular – Effects of anesthesia on cardiac function, Myocardial dysfunction, Dysrhythmias, postoperative hypertension, post operative hypotension ➢ Thermoregulatory – Hypothermia, shivering, hyperthermia, malignant hyperthermia ➢ Neurology- Delayed emergence, emergence delirium, ➢ Nausea and vomiting
IX	10	**Other special situations in critical care** • Rapid response teams and transport of the critically ill • Disaster management • Ophthalmic emergencies – Eye injuries, glaucoma, retinal detachment • ENT emergencies - Foreign bodies, stridor, bleeding, quinsy, acute allergic conditions • Psychiatric emergencies – Suicide, crisis intervention
	5	**Class tests**
Total	96 hours	

List of skills to be practiced in the skill lab (69 hours include demonstration by the faculty and practice by the students).

- **Hematological alterations**
  - Blood transfusion
  - Bone marrow transplantation
  - Care of Catheter site
  - Bone marrow aspiration
- **Skin alterations**
  - Burn fluid resuscitation
  - Burn feeds calculation
  - Burn dressing
  - Burns bath
  - Wound dressing
- **Multi system alterations requiring critical care**
  - Triage
  - Trauma team activation
  - Administration of anti snake venom
  - Antidotes
- **Specific infections in critical care**
  - Isolation precautions

- Disinfection and disposal of equipment

- **Critical care in Obstetrics, children, and Older Adult**
  - partogram
  - equipment – incubators, warmers
- **Critical Care in Perianesthetic period**
  - Assisting with planned intubation
  - Monitoring of patients under anesthesia
  - Administration of nerve blocks
  - Titration of drugs – Ephedrine, Atropine, Naloxone, Avil, Ondansetron
  - Sensory and motor block assessment for patients on epidural analgesia.
  - Technical troubleshooting of syringe / infusion pumps.
- **Other special situations in critical care**
  - Disaster preparedness and protocols

The skills listed under the Specialty courses such as Foundations of Critical Care Nursing Practice, Critical Care Nursing I and Critical Care 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 ICUs. The log book specifies all the requirements to be completed and the list of skills that are to be signed by the preceptor once the students develop proficiency in doing the skills independently.

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APPENDIX 1

EQUIPMENT LIST FOR A TEN BEDDED ICU

1. Adjustable electronic cot with mattress – 10
2. IV stand – 20
3. Bed side locker – 11 (10 – patients; 1 – stock)
4. Over bed trolley – 10
5. Dressing trolley (Small) – 5
6. Dressing trolley (medium) – 2
7. Syringe pump – 60
8. Infusion pump – 35
9. Monitors- 11 (10 –patients; 1- stock)
10. Transport monitor/pulse oximeter – 2
11. Ventilators – 12 (10 – patients; 2 – stock)
12. Portable ventilators -2
13. ABG machine – 2
14. ECG machine – 1
15. Ultrasound machine – 1
16. Doppler machine – 1 (if vascular patients are admitted in ICU)
17. Defibrillator – 2
18. Peripheral Nerve Stimulator – 1
19. Blood warmer – 3
20. Patient warmer – 5
21. Sequential Compression Device – 10
22. Alpha mattress with motor – 15
23. LEAD shield – 1
24. Crash cart – 1
25. Transfer trolley – 4
26. OR trolley - 2
27. Safe slider – 2
28. Computer – 4
29. Printers – 2
30. Bain circuit – 12
31. Oxygen flow meter – 30
32. Suction port with jar – 15
33. Air flow meter / pulmoaid– 10
34. Refrigerator – 3 (1- feeds, 1- drugs, 1-other use)
35. Metal foot step/foot stool – 10

36. Ambulation chair – 5
37. UPS -1
38. Flat trolley -1
39. Dialysis machine -1 (mandatory for level I ICU)
40. Spot light – 2
41. Labelling machine – 1
42. Glucometer – 2
43. Ambu bag with different sizes – 10 sets
44. Fiberoptic bronchoscope – 1
45. Intubating videoscope – 1
46. Intra-Aortic Balloon Pump (IABP) in Cardiac/Cardiothoracic ICU
47. Trays with sterile sets /disposable sets for various procedures (eg. Insertion of central venous catheter, tracheostomy etc)

48. Minimum standards for Indian ICUS (ICU 6-12 beds) (ISCCM, 2010)

- Space from head end of wall- 2 feet
- Bed space – minimum 100 sq. ft.
- Additional space (storage, Nursing station, doctors room and circulation space)- 100% extra of the bed space.
- Oxygen outlets 2
- Vacuum outlets 2
- Compressed air outlets 1
- Electric outlets (2 on each side of patients)
- With 5/15 amp pins
- Central nursing station

APPENDIX 2

ASSESSMENT GUIDELINES (including OSCE guidelines)

INTERNAL ASSESSMENT (Theory and practical)

I Year

1. **Theoretical Basis for Advanced Practice Nursing**

   College examination of theory only: 50 marks

   Internal assessment:

   Test paper/Quiz-10 marks

   Written assignment/term paper-10 marks (Global and national healthcare trends & policies)

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

   Final theory college exam: 25 marks

   Total Marks: 50 marks

2. **Research Application and Evidence Based Practice in Critical Care**

   Theory:

   Test papers: 20 marks

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

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

   Total : 30 marks

3. **Advanced skills in Leadership, Management and Teaching Skills**

   Theory:

   Test papers : 15 marks

   Journal club (Trends in Leadership/management/Teaching) : 5 marks

   Written assignment: 5 marks (ICU work place violence)

   Microteaching: 5 marks

   Total : 30 marks

4. **Advanced Pathophysiology & Advanced Pharmacology relevant to Critical Care**

   Theory:

Test papers and Quiz: 20 marks (Pathophysiology-10, Pharmacology-10)

Drug studies-5 marks (Drug study and presentation)

Case presentation and case study report (Pathophysiology): 5 marks

Total : 30 Marks

5. **Advanced Health/physical Assessment**
   Theory:

   Test papers: 20 marks

   Written assignment: 10 marks (Diagnostic/investigatory reports-interpretation and analysis of findings)

   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 two ICUs (Medical ICU and Surgical ICU preferable)

II Year

1. **Foundations of Critical Care Nursing Practice**
   Theory:

   Test papers and Quiz: 20

   Written assignment: 10 marks (ICU protocols)

   Total: 30 marks

   Practicum:

   Clinical Performance evaluation: 20 marks

   End of posting exam (OSCE)- 10 marks

   Drug studies (Drug study and presentation): 10 marks

   Case presentation and case study report (Family education/counseling): 5 marks

   Case presentation (Application of Clinical/Care Pathway): 5 marks

   Internal OSCE: 50 marks

Total Internal practical: 100 marks

2. **Critical Care 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. **Critical Care Nursing II**

Theory:

Test papers: 20 marks

Clinical Seminar: 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 (Developed clinical/care pathway): 10 marks

Internal OSCE:50 marks

Total Internal practical: 100 marks

End of posting exam can be conducted in any two of the ICUs (Medical ICU and Surgical ICU preferable)

4. **Dissertation**

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)

OSCE GUIDELINES FOR INTERNAL AND EXTERNAL PRACTICAL EXAMINATION

I YEAR

I. HEALTH ASSESSMENT

INTERNAL

OSCE: 25 marks

CORE COMPETENCY DOMAINS TO BE EXAMINED

1. Focused history taking and physical examination of adult patient
2. Focused history taking and physical examination of pediatric patient
3. Interpretation of findings and results
4. Monitoring of clinical parameters

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

Time for each station: 10 minutes

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

Total: 4x5=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
8. 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: 8x5=40 marks

Oral exam=10 marks

Total =50 marks

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

II YEAR

I. FOUNDATIONS OF CRITICAL CARE NURSING

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. Family Education and counseling

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

Time for each station: 10 minutes

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

Total: 10x4=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. Monitoring competencies (Invasive and noninvasive)
5. Development of care plan
6. Family education and counseling
7. Therapeutic interventions (Emergency procedures) including drug administration
8. Therapeutic interventions (Emergency procedures) including drug administration

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: 8x10=80 marks

Oral exam=20marks

Total =100marks

II & III. CRITICAL CARE 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. Therapeutic interventions-(Emergency procedural competencies) Including drug administration

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

Time for each station: 10 minutes

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

Total: 10x4=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 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. Family education and counseling
7. Drug administration
8. Therapeutic interventions (Emergency procedures)

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

Time for each station: 10 minutes

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

Total: 8x10=80 marks

Oral exam=20marks

Total =100marks

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 (NP) IN CRITICAL CARE PROGRAM
(Procedural competencies/Skills)
I YEAR

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*/ FACULTY
I	**RESEARCH APPLICATION AND EVIDENCE BASED PRACTICE**			
1	Preparation of research instrument			
2	Writing systematic review/literature review			
3	Preparation of a manuscript for publication (I or II Year)			
4	Dissertation (II year) Topic:			
II	**LEADERSHIP, MANAGEMENT, AND TEACHING**			
1	Preparation of staff patient assignment			
2	Preparation of unit budget			
3	Preparation of staff duty roster			
4	Patient care audit in the unit			
5	(Preparation of standards/protocols deleted)Management of equipment and supplies			
6	Monitoring, evaluation, and writing report related to infection control			
7	Preparation of teaching plan and media for teaching patients/ staff			
8	Micro teaching / patient education sessions			
9	Planning and conducting OSCE/OSPE			
10	Construction of tests			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*/ FACULTY
III	**HEALTH ASSESSMENT**			
1	Comprehensive history taking			
2	Comprehensive physical examination			
3	Focused history taking (system wise)			
4	***Focused physical examination (System wise)***			
4.1	Respiratory system			
4.2	Cardiac system			
4.3	Gastrointestinal			
4.4	Nervous			
4.5	Genitourinary			
4.6	Endocrine			
4.7	Hematological			
4.8	Musculoskeletal			
4.9	Integumentary			
4.10	Sensory organs			
5	***Age specific History & physical examination***			
5.1	Neonate			
5.2	Child			
5.3	Adult			
5.4	Geriatric			
6	***History & Physical examination of a Pregnant woman***			
IV	**DIAGNOSTIC PROCEDURES**			
1	***Collecting blood sample for laboratory***			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR* FACULTY
	tests			
1.1	Biochemistry			
1.2	Clinical pathology			
1.3	Microbiology			
1.4	ABG			
2	*Assisting procedures*			
2.1	Paracentesis			
2.2	Thoracentesis			
2.3	Lumbar puncture			
2.4	Liver biopsy			
2.5	Renal biopsy			
2.6	Bone marrow aspiration			
3	*Witnessing procedures*			
3.1	ERCP			
3.2	PET scan			
3.3	Endoscopy			
3.4	MRI / CT			
3.5	Ultrasound			
3.6	EMG			
3.7	Echocardiogram			
V. BASIC COMPETENCIES				
1	Admission			
2	Transfer			
3	Transport			
4	*Setting up, use and maintenance of basic critical care equipment*			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*/ FACULTY
4.1	Monitor/s			
4.2	Transducer / pressure bag			
4.3	Temperature probes			
4.4	SpO_2 probes			
4.5	Sequential compressing device			
4.6	12 –lead ECG monitor			
4.7	Warmer			
4.8	Fluid warmer			
4.9	ET Cuff pressure monitor			
4.10	Syringe pump			
4.11	Infusion pump			
4.12	Alpha mattress			
5	***Monitoring and interpretation of critical parameters***			
5.1	Arterial Blood Gas (ABG)			
5.2	Oxygen saturation			
5.3	Endotracheal tube cuff pressure			
5.4	Capnography			
5.5	Hemodynamics			
5.6	Electrocardiogram (ECG)			
5.7	Intracranial pressure (ICP)			
5.8	Invasive BP monitoring			
5.9	Non invasive BP monitoring			
5.10	PiCCO (Pulse index Continuous Cardiac Output)			
5.11	Peripheral vascular status			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR* FACULTY
5.12	Glasgow Coma Score			
5.13	Sedation Score			
5.14	Pain Score			
5.15	Braden Score			
5.16	Bowel sounds			
5.16	GRBS			
5.17	Partogram			
5.18	Chest Xray			

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

Students: 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 NP 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

II YEAR

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE THE PRECEPTOR FACULTY
	ADVANCED COMPETENCIES			
1	***Setting up, use and maintenance of Critical care equipment***			
1.1	Ventilator			
1.2	Defibrillator			
1.3	Pacemaker			
1.4	CRASH trolley			
1.5	CPAP / BiPAP			
2	***Triage***			
3	***Family education and counseling***			
4	***Discharge/LAMA***			
5	***Medico-legal compliance***			
6	***End of life care***			
6.1	Brain death			
6.2	Organ donation			
7	***After life care***			
8	***Care during transfer by air ambulance***			
9	***Care during transfer by surface ambulance***			
10	***Infection control practices***			
11	***Standard/Universal precautions***			
12	***Disinfection/sterilization***			
13	***BLS and ACLS***			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR FACULTY
14	***Preparation of policies/standards/protocols in ICU***			
15	***Administration of medication (includes standing orders) I & II Year***			
15.1	**Catecholamines** (calculation, titration & administration) a. Adrenaline b. Noradrenaline c. Dopamine d. Dobutamine e. f. g.			
15.2	**Antidysrhythmics** a. Adenosine b. Amiadarone c. Lidocaine/Xylocard d. e.			
15.3	**Adrenergic agent** a.Ephedrine b.			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE O THE PRECEPTOR*/ FACULTY
15.4	**Bronchodilators** a. Aminophylline b. Deriphylline c.			
15.5	**Non depolarizing skeletal muscle relaxant** a. Atracurium (Vecuronium, Pancurium) b.			
15.6	**Anticholinergic** a. Atropine Sulphate b.			
15.7	**Antihistamine** **a.** Avil			
15.8	**Anihypertensives** a. Clonidine b. Glyceryl Trinitrate **c.** Isoptin			
15.9	**Corticosteroids**			
	a. Hydrocortisone **b.** Dexamethasone			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR/ FACULTY
15.10	**Antiepileptics** a. Levitracetam b. Phenytoin c.			
15.11	**Muscle relaxants & Sedatives** a. Valium b. Midazolam c. Morpine sulphate d. Pentazocin Lactate (Fortwin) e. Pethidine hydrochloride f. Propofol h. i.			
15.12	**Electrolyte and acid base correction with/without device(Na, K, Cal, P, Mg, Fe)** a. Soda bicarbonate 8.4% b. Soda bicarbonate 7.5% c. Magnesium sulphate d. Potassium chloride			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*/ FACULTY
15.13	**Epidural analgesia** a. Sensory and motor block assessment b. Removal of epidural catheter c. Change of epidural catheter dressing d. Insertion and removal of subcutaneous port for analgesic administration e. Dose titration for epidural infusion f. Epidural catheter adjustment g. Purging epidural drugs			
15.4	PCA analgesia			
15.5	*Additional drugs specific to different ICUs* a. Antidotes-Nalaxone, N Acetyl Cysteine, Warfarin b. Anti snake venom (ASV) c. d. e. f.			
16	***Management of Cardiovascular Alterations***			
16.1	Intravenous fluid administration (Colloid/Crystalloid)			
16.2	Blood and blood product administration			
16.3	Application of TED stocking			
16.4	Insertion of CVP line			
16.5	Care and removal of CVP line			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE THE PRECEPTOR FACULTY
16.6	Insertion of arterial line			
16.7	Care and removal of arterial line			
16.8	Assisting with insertion of pulmonary artery catheter			
16.9	Care of Patient with Pacemaker			
16.10	Blood collection from arterial line			
17	***Management of Pulmonary Alterations***			
17.1	Airway application			
17.2	Laryngeal mask airway application			
17.3	Intubation and care of ET tube			
17.4	Extubation			
17.5	Assisting for tracheostomy insertion			
17.6	Tracheostomy care and suctioning			
17.7	Endotracheal suctioning – Open and closed			
17.8	Assisting with insertion of chest tube			
17.9	Care of patient with Chest drainage			
17.10	Chest tube removal			
17.11	Nebulization			
17.12	Care of patient on Mechanical ventilator			
17.13	Non – invasive ventilation			
17.14	Connecting to Ventilator			
17.15	Weaning from ventilator			
17.16	Use of T-tube and Venturi devices			
17.17	Postural drainage			
17.18	Weaning from tracheostomy			
17.19	Chest physiotherapy			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE O THE PRECEPTOR* FACULTY
17.20	Assisting for bronchoscopy			
18	***Management of Neurological Alterations***			
18.1	Sensory stimulation			
18.2	Consciousness/Coma status monitoring			
18.3	Brain death evaluation			
19	***Management of Genitourinary Alterations***			
19.1	Cannulating for hemodialysis			
19.2	Starting and closing of hemodialysis			
19.3	Care of patient on hemodialysis			
19.4	Initiating peritoneal dialysis			
19.5	Care of patient on peritoneal dialysis			
19.6	Calculation of fluid replacement			
20	***Management of Gastrointestinal Alterations***			
20.1	Estimation of dietary allowance			
20.2	Therapeutic diet planning			
20.3	Enteral nutrition -Gastrostomy / Jejunostomy feeding			
20.4	Administration of Parenteral nutrition (TPN)			
21	***Management of Endocrine Alterations***			
21.1	Insulin therapy (sliding scale & infusion) Calculation, titration and administration			
21.2	Steroids-Calculation and administration			
22	***Ordering investigations***			
22.1	ECG			
22.2	ABG			
22.3	Chest X ray			

S.No.	SPECIFIC COMPETENCIES/SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR/ FACULTY
22.4	Ultrasound			
22.5	Basic biochemistry investigations			
22.6	Basic microbiology investigations			
23	***Ordering procedures/treatment***			
23.1	Nebulization			
23.2	Chest physiotherapy			
23.3	Distal colostomy wash			
23.4	Insertion and removal of urinary catheter			
23.5	Test feeds			
23.6	TEDS			
23.7	Surgical dressing			
23.8	Starting and closing dialysis			
23.9	Application of Icthammol Glycerin / Magnesium Sulphate dressing for Thrombophlebitis / extravasation.			
23.10	Pin site care for patients on external fixators			
23.11	Isometric and isotonic exercises			
23.12	Hot and cold applications			

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

Students: 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 NP 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 NP IN CRITICAL CARE PROGRAM
I 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)* *Title of the topic:*		
1.2	***RA-** Evidence search for ICU nursing competencies (Clinical conference/Journal club)* *Title of the topic:*		
1.3	***L,M&T-** Trends in Leadership/Management/ Teaching (Journal club)* *Title of the topic:*		
2	***Clinical Rounds (With Nursing staff, faculty, students)-Case/Clinical presentation***		
2.1	***Pathophysiology*** (Clinical conditions) Name of clinical condition:		
2.2	***Pathophysiology*** (Clinical conditions) Case study (written report) Name of clinical condition:		

S.No.	CLINICAL REQUIREMENT	DATE	SIGNATURE OF THE PRECEPTOR/FACULTY
2.3	*Pharmacology* -Drug studies (drugs listed under standing orders)- written report of 5 presentations (bedside presentations) Drug name:		
2.4	Drug name:		
2.5			
2.6			
2.7			
2.8			
2.9			
2.10			
2.11			
2.12			
3	***Interdisciplinary Clinical Rounds (With ICU doctors) – Case/Clinical Presentation (Written reports are for submission)***		
3.1	Health Assessment (adult) -History & Physical Examination (Two written reports) 3.1.1. 3.1.2. 3.1.3. 3.1.4. 3.1.5.		
3.2	Health Assessment (Pediatric)-History &		

S.No.	CLINICAL REQUIREMENT	DATE	SIGNATURE OF THE PRECEPTOR/FACULTY
	Physical Examination (One written report) 3.2.1. 3.2.2. 3.2.3.		
3.3	Health Assessment (Pregnant woman) (One written report) 3.3.1. 3.3.2.		

*Advanced practice Nursing-APN, Research application-RA, Leadership, Management and Teaching-LM&T

Signature of the Program coordinator/Faculty

Signature of the HOD/Principal

CLINICAL EXPERIENCE DETAILS

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

Signature of the Program coordinator/Faculty

Signature of the HOD/Principal

CLINICAL REQUIREMENTS FOR NP IN CRITICAL CARE PROGRAM II YEAR

S.No.	CLINICAL REQUIREMENT	DATE	SIGNATURE OF THE PRECEPTOR/FACULTY
1	***Clinical Seminar/Journal Club/ Clinical Conference***		
1.1	**Foundations of critical care nursing practice** (Clinical conference) *Title of the topic:*		
1.2	**Critical Care Nursing I** (Clinical Seminar) *Title of the topic:*		
1.3	**Critical Care Nursing I** (journal club) *Title of the topic:*		
1.4	**Critical Care Nursing II** (Clinical seminar) *Title of the topic:*		
1.5	**Critical Care Nursing II** (Journal club) *Title of the topic:*		
2	***Clinical Rounds (With Nursing staff, faculty, students)-Clinical/Case presentation (Written reports are for submission)***		
2.1	**Foundations of critical care nursing (Family education/counseling) written report**		

S.No.	CLINICAL REQUIREMENT	DATE	SIGNATURE OF THE PRECEPTOR/FACULTY
	Name of topic		
2.2	Foundations of critical care nursing (Clinical/care pathway) Name of topic		
2.3	Critical care nursing I (clinical condition) Name of clinical condition		
2.4	Critical care nursing I (Case study report) Name of clinical condition		
2.5	Critical Care nursing II Name of clinical condition		
2.6	Critical care nursing II (Case study report) Name of clinical condition		
2.7	*Drug studies (drugs listed under standing orders) Bedside presentation (Five written reports)*		
	Name of drug		
2.8	Name of drug		
2.9			
2.10			
2.11			
2.12			
2.13			
2.14			
2.15			
2.16			

S.No.	CLINICAL REQUIREMENT	DATE	SIGNATURE OF THE PRECEPTOR/FACULTY
3	***Interdisciplinary Clinical Rounds (With ICU doctors) – Clinical/Case Presentation***		
3.1	**Critical Care Nursing I**		
	Name of clinical condition		
3.2	-		
3.3			
3.4			
3.5	(Case study report)		
3.6	**Critical Care Nursing II**		
3.7			
3.8			
3.9	*(Case Study report)*		
3.10	*Written report (Developed Clinical/Care pathway)*		

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 ICU	Clinical Condition	Number of days care given	Signature of Faculty/Preceptor

Signature of the Program coordinator/Faculty

Signature of the HOD/Principal

APPENDIX 5

STANDING ORDERS AND PROTOCOLS

Nurse practitioners are prepared and qualified to assume responsibility and accountability for the care of critically ill patients. They collaborate with Intensivists, physicians, surgeons and specialists to ensure accurate therapy for patients with high acuity needs. On completion of the program, the NPs will be permitted to administer drugs listed in standing orders as per the institutional standing orders. They will also be permitted to order diagnostic tests/procedures and therapies as per institutional protocols.

STANDING ORDERS

The following intravenous injections or infusions may be administered by the Nurse Practitioner during emergency in any of the ICUs

Catecholamines

1. Adrenaline
2. Noradrenaline
3. Dopamine
4. Dobutamine

Antidysrhythmic

5. Adenosine
6. Amiodarone
7. Lidocaine/ Xylocard

Adrenergic agent

8. Ephedrine

Bronchodilators

9. Aminophylline
10. Deriphylline

Non depolarizing skeletal muscle relaxant

11. Atracurium (Vecuronium, Pancurium)

Anticholinergic

12. Atropine Sulphate

Antihistamine

13. Avil

Antihypertensive

14. Clonidine
15. Glycerine trinitrate
16. Isoptin

Corticosteroid

17. Hydrocortisone
18. Dexamethasone

Antiepileptic

19. Levitracetam
20. Phenytoin

Sedatives & relaxants

21. Valium
22. Midazolam
23. Morphine Sulphate
24. Pentazocin Lactate (Fortwin)
25. Pethidine Hydro Chloride
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 each ICU are as follows:

SURGICAL INTENSIVE CARE UNIT (including nephrology, burns, obstetric and gynaecologic patients)	MEDICAL INTENSIVE CARE UNIT (including nephrology, hematology, dermatology and infectious patients)	CARDIOTHORACIC CRITICAL CARE UNIT	CARDIAC CRITICAL CARE UNIT
Naloxone Pitocin Proatamine sulphate	Digoxin Tranexamic acid Verapamil	Sodium nitroprusside Largactil Amrinone Milrinone Decadron	Sorbitrate Angised Streptokinase Urokinase Elaxime

EMERGENCY SERVICES	PAEDIATRIC INTENSIVE CARE UNIT	NEUROLOGICAL INTENSIVE CARE UNIT	
Methylprednisolone Emeset Antisnake venom	Dilantin	Tensilon Neostigmine Thiopentone Mestinon Prostigmine	

The following investigations and therapies may be ordered by the NPs

ORDERING INVESTIGATIONS	ORDERING THERAPIES
▪ ECG ▪ ABG ▪ Chest X ray ▪ Basic Bio chemistry investigations – Hb, PCV, TIBC, WBC Total, WBC differentials, ESR, Electrolytes, platelets, PT, aPTT, bleeding and clotting time, procalcitonin, D diamer, 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,	▪ 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 Icthammol 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 NPCC 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 NPCC students.