PROGRAMME NURSE PRACTITIONER IN CRITICAL CARE

Ordinance No. (V-115 B)

SYLLABUS

Approved by the Academic Council in its meeting held on 29-9-2016

FACULTY OF NURSING

SWAMI VIVEKANAND SUBHARTI UNIVERSITY, MEERUT

PRINCIPAL
Panna Dhai Maa
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CORE COURSE

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 transfzorms 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

Engages in ethical practice having a sound knowledge of law, ethics and regulation of advanced nursing practice

Uses the training opportunities provided through well planned preceptorship and performs safe and competent care applying nursing process

Applies the knowledge of nursing theories in providing competent care to critically ill patients

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 (Collaborative practice and Nurse Prescribing roles) (Competency-6&7)	3

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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

Sl. No.	Topic	Hours
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 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 application*s. 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

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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 (Competency – 3,4,5)	4
	Total	**56hrs.**

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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 – Analyze the evidence for a given nursing intervention in ICU

Clinical 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)**

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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
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.**

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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

Bibliography:

Bastable, S. B. (2010).*Nurse as educator: Principles of teaching and learning for nursing practice* (3rd ed.). New Delhi: Jones & Bartlett Publishers

Billings, D. M., & Halstead, J. A. (2009).*Teaching in nursing: A guide for faculty* (3rd ed.). St.Louis, Missouri: Saunders Elsevier.

Clark, C. C. (2010). Creative nursing leadership and management. New Delhi: Jones and Bartlet Publishers.

McConnel.(2008). Management principles for health professionals. Sudbury, M. A: Jones and Bartlet Publishers.

Roussel, L., &Swansburg, R. C. (2010). Management and leadership for nurse administrators (5th ed.). New Delhi: Jones and Bartlet Publishers.

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ADVANCED NURSING COURSE

A. Advanced Pathophysiology Applied to Critical Care Nursing – I

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

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	(6)	• Infectious diseases • Respiratory failure • Chest trauma **3. Neurological function** Advanced pathophysiological process of neurological conditions • Seizure disorder • Cerebrovascular disease • Infections • Spinal cord disorder • Degenerative neurological diseases • Neurological trauma • Coma, unconsciousness

Unit	Hours	Content
	(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

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IV. B. Advanced Pathophysiology Applied to Critical Care Nursing - II

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
IV	(6)	**4. Specific infections**

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		Advanced pathophysiological process of specific infections • HIV • Tetanus • SARS • Rickettsiosis • Leptospirosis • Dengue • Malaria

Unit	Hours	Content
V	(6)	• Chickungunya • Rabies • Avian flu • Swine flu **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

Bibliography

Huether, S. E., &McCance, K. L. (2012). Understanding pathophysiology (5th ed.). St. Louis, Missouri: Elsevier

John, G., Subramani, K., Peter, J. V., Pitchamuthu, K., &Chacko, B. (2011). Essentials of critical care (8th ed.). Christian Medical College: Vellore.

Porth, C. M. (2007). Essentials of pathophysiology: Concepts of altered health states (2nded.). Philadelphia: Lippincott Williams and Wilkins.

Urden, L. D., Stacy, K. M., & Lough, M. E. (2014). Critical Care Nursing- Diagnosis and management (7th ed.). Elsevier: Missouri

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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

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III	5	**Pharmacology and Cardiovascular alterations in Critical care** • Vasoactive Medications ▪ Vasodilator, ▪ Vasopressor, ▪ Inotropes - Cardiac glycosides – digoxin - Sympathomimetics – Dopamine, dobutamine, epinephrine, isoproterenol, norepinephrine, phenylephrine - 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

Unit	Hours	Content
		▪ 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

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V	6	**Pharmacology and Neurological alterations in Critical care** • Pain ▪ NSAID ▪ Opioid analgesia • Sedation ▪ amino butyric acid stimulants ▪ 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

Unit	Hours	Content
		▪ 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

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VI	5	**Pharmacology and Nephrology alterations in Critical care** • Diuretics • Fluid replacement ▪ Crystalloids ▪ Colloids • 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

Unit	Hours	Content
		▪ 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

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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 ▪ 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

Unit	Hours	Content
		▪ Medications in the management of Tumor lysis syndrome • Standing orders for hematology critical care emergencies

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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** • 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) • 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

Bibliography

Johnson, T. J. (2012). *Critical care pharmacotherapeutics*.Jones & Bartlett Learning: United States of America

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

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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
- Analyzes the results of various investigations and works collaboratively 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: 46 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
	(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

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	(6)	**5. Renal system** • History • Physical examination • Assessment of renal function

Unit	Hours	Content
		• 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
	(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

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		• Physical examination • Laboratory studies • Diagnostic studies
	(4)	**12. Sensory Organs** • History • Physical examination • Laboratory studies • Diagnostic studies - Radiological and imaging studies, endoscopic studies

Unit	Hours	Content
	(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
- 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

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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 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

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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

Unit	Hours	Content
		• 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)

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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)

Unit	Hours	Content
		• 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

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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 parentral 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

Unit	Hours	Content

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		• 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 relevaqnt 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 • 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

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- Devices to measure oxygen/oxygenation
  - Fuel cell
  - Para magnetic oxygen analyzer

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- PO2 electrodes-Clark electrodes
- Transcutaneous oxygen electrodes
- Oximetry – Pulse oximetry, Venous oximetry

o Capnography

o Non invasive ventilation

- Low flow variable performance devices: nasal catheters/cannulae/double nasal prongs, face mask, face mask with reservoir bags
- High flow fixed performance devices : Entrainment (Venturi) devices, NIV/CPAP/Anesthetic masks, T pieces, breathing circuits

o Postural drainage

- Ventilation and ventilator support
  - o Connecting to ventilator
  - o Weaning from ventilator
  - o Extubation
  - o Humidifiers
  - o Nebulizers – jet, ultrasonic
  - o Inhalation therapy – metered dose inhalers (MDI), dry powder inhalers (DPI)
- Circulation and perfusion (including hemodynamic evaluation and waveform graphics)
  - o Invasive blood pressure monitoring
  - o Non-invasive BP monitoring
  - o Venous pressure (Peripheral, Central and Pulmonary artery occlusion pressure)
  - o Insertion and removal of arterial line
  - o Insertion and removal of central line
  - o Pulse index Continuous Cardiac output (PiCCO)
  - o Electrocardiography (ECG)
  - o Waveforms
- Fluids and electrolytes
  - o Fluid calculation and administration (crystalloids and colloids)
  - o Administration of blood and blood products
  - o Inotrope calculation, titration and administration
    - Cardiac glycosides – Digoxin
    - Sympathomimetics – Dopamine, dobutamine, epinephrine, isoproterenol, norepinephrine, phenylephrine
    - Phosphodiesterase inhibitors – amrinone, milrinone
  - o Electrolyte correction (Sodium, potassium, calcium, phosphrous, magnesium)

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- Use of fluid dispenser and infusion pumps
- Evaluation of acid base status
  - Arterial blood gas (ABG)
- Thermoregulation, care of patient with hyper/hypothermia

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- 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

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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 - 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

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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

Unit	Hours	Content
		- 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

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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 • Gastrointestinalconditions requiring critical care management - Acute GI bleeding - Hepatic failure - Acute pancreatitis - Abdominal injury - Hepatic encephalopathy

Unit	Hours	Content
		- 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 • Endocrineconditions 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**	

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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 aorticballon 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

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- Preparing patient for dialysis
- Cannulating for dialysis
- Starting and closing dialysis

- *Gastrointestinal alterations*
  - Abodminal 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 harmone levels
  - Calculation and administration of corticosteroids
  - Calculation and administration of Insulin – Review

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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

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IV	10	**Specific infections in critical care** • HIV • Tetanus • SARS • Rickettsiosis • Leptospirosis • Dengue • Malaria

Unit	Hours	Content
		• 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 - Puperal sepsis - Obstetrical shock - HELLP syndrome - DIC - Amniotic fluid embolism - ARDS - Trauma

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VI	10	**Critical care in children** • Prominent anatomical and physiological differences and implications • Conditions requiring critical care - AAsphyxia 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;

Unit	Hours	Content

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		• 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**	

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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
  - equipments – 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

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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 – patient; 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 –patient; 1- stock)
10. Transport monitor/pulseoximeter – 2
11. Ventilators – 12 (10 – patient; 2 – stock)
12. Portable ventilators -2
13. ABG machine – 2
14. ECG machine – 1
15. Ultrasound machine – 1
16. Doppler machine – 1
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. LED shield – 1
24. Crash cart – 1
25. Transfer trolley – 4
26. OR trolley - 2
27. Safe slider – 2
28. Computer – 4
29. Printers – 2

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30. Bain circuit – 12
31. Oxygen flow meter – 30
32. Suction port with jar – 15
33. Air flow meter /pulmoaid– 10

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34. Refrigerator – 3 (1- feeds, 1- drugs,
35. Metal foot step/foot stool – 10
36. Ambulation chair – 5
37. UPS -1
38. Flat trolley -1
39. Dialysis machine -1
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. Minimum standards for Indian ICUS (ICU 6-12 beds) (ISCCM, 2010)

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

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Appendix 2a

CLINICAL LOG BOOK FOR NURSE PRACTITIONER (NP) PROGRAM IN CRITICAL CARE

(Specific competencies/Skills) I YEAR

S.No.	SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*
I	**RESEARCH APPLICATION AND EVIDENCE BASED PRACTICE**			
1	Preparation of research instrument			
2	Preparation of a manuscript for publication			
3	Writing systematic review			
4	Dissertation Topic:			
II	**ADVANCED SKILLS IN 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			
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	Micro teaching / patient education sessions			
9	Preparation of teaching method and media for patients and staff			
10	Planning and conducting OSCE/OSPE			
11	Construction of tests			
III	**ADVANCED HEALTH ASSESSMENTS**			
1	Comprehensive history taking			
2	Focused physical assessment(System wise)			
2.1	Respiratory system			
2.2	Cardiac system			
2.3	Gastrointestinal			

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2.4	Nervous			
2.5	Genitourinary			
2.6	Endocrine			
2.7	Hematological			
2.8	Musculoskeletal			

S.No.	SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*
2.9	Integumentary			
2.10	Sensory organs			
3	Age specific History &physical examination			
3.1	Geriatric			
3.2	Adult			
3.3	Child			
3.4	Neonate			
4	History &Physical examination of a Pregnant woman			
III	**DIAGNOSTIC PROCEDURES**			
1	Collecting blood sample			
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	Chest X – ray			
3.2	ERCP			
3.3	PET scan			
3.4	Endoscopy			
3.5	MRI / CT			
3.6	Ultrasound			

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3.7	EMG			
3.8	Echocardiogram			
4	ECG			
III	**GENERAL COMPETENCIES**			
1	Admission			
2	Transfer			
3	Transport			
4	Discharge / LAMA			
5	Medico-legal compliance			
6	Family education andcounselling			

S.No.	SKILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*
7	End of life Care			
7.1	Brain death			
7.2	Organ donation			
8	After life Care			
9	Setting up, use and maintenance of Critical care equipment			
9.1	Ventilator			
9.2	Monitor			
9.3	Transducer / pressure bag			
9.4	Temperature probes			
9.5	SpO_2 probes			
9.6	Sequential compressing device			
9.7	12 –lead ECG monitor			
9.8	Warmer			
9.9	Fluid warmer			
9.10	ET Cuff pressure monitor			
9.11	Defibrillator			
9.12	Pacemaker			
9.13	Syringe pump			
9.14	Infusion pump			
9.15	Alpha mattress			
9.16	CRASH trolley			
10	Triage			
11	Care during transfer by air ambulance and surface ambulance			

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Appendix 2b

CLINICAL LOG BOOK FOR NP IN CRITICAL CARE

(Specific competencies/Skills) II Year

S.No.	S KILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*
I	**GENERAL COMPETENCIES**			
1	Setting up, use and maintenance of Critical care equipment			
1.1	Ventilator			
1.2	Monitor			
1.3	Transducer / pressure bag			
1.4	Temperature probes			
1.5	SpO2 probes			
1.6	Sequential compressing device			
1.7	12 –lead ECG monitor			
1.8	Warmer			
1.9	Fluid warmer			
1.10	ET Cuff pressure monitor			
1.11	Defibrillator			
1.12	Pacemaker			
1.13	Syringe pump			
1.14	Infusion pump			
1.15	Alpha mattress			
1.16	CRASH trolley			
1.17	CPAP / BiPAP			
2	Monitoring of critically ill patients			
2.1	Arterial blood gas ABG			
2.2	Oxygen saturation			
2.3	Endotracheal tube cuff pressure			
2.4	Capnography			
2.5	Hemodynamics			
2.6	Electrocardiogram (ECG)			
2.7	Intracranial pressure			
2.8	Invasive BP monitoring			

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2.9	Non invasive BP monitoring			
2.10	PiCCO			
2.11	Peripheral vascular status			
2.12	Glasgow Coma Scale			

S.No.	S KILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*
2.13	Sedation Scale			
2.14	Pain Score			
2.15	Braden Score			
2.16	Bowel sounds			
2.17	GRBS			
2.18	Partogram			
3	Administration of medication			
3.1	Sedation			
3.2	Muscle relaxant			
3.3	Electrolyte infusion			
3.4	Insulin infusion			
3.5	Ionotropeadministration			
3.6	Thrombolytic drug			
3.7	Corticosteroid			
4	Infection control			
5	Universal precaution			
6	Disinfection / Sterilization			
7	Preparation of standards/policies/protocols			
8	BLS			
9	ACLS			
10	Management of Cardiovascular Alterations			
10.1	Fluid administration (Colloid/Crystalloid)			
10.2	Blood and blood product administration			
10.3	Application of TED stocking			
10.4	Insertion and Care of CVP line			
10.5	Removal of CVP line			
10.6	Assisting with insertion of arterial line			
10.7	Care of arterial line			
10.8	Removal of arterial line			
10.9	Assisting with insertion of pulmonary artery catheter			
10.10	Care of Patient with Pacemaker			

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10.11	Blood collection from arterial line			
11	Management of Pulmonary Alterations			
11.1	Airway application			
11.2	Laryngeal mask airway			
11.3	Assisting with intubation			
11.4	Care of ET tube			
11.5	Extubation			
11.6	Assisting for tracheostomy insertion			
11.7	Tracheostomy care and suctioning			

S.No.	S KILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*
11.8	Endotracheal suctioning - Open			
11.9	Endotracheal suctioning - Closed			
11.10	Assisting with insertion of chest tube			
11.11	Care of patient with Chest drainage			
11.12	Chest tube removal			
11.13	Nebulization			
11.14	Oxygen administration			
11.15	Care of patient on Mechanical ventilator			
11.16	Non – invasive ventilation			
11.7	Connecting to Ventilator			
11.18	Weaning from ventilator			
11.19	Use of T-tube andVenturi devices			
11.20	Postural drainage			
11.21	Weaning from tracheostomy			
11.22	Chest physiotherapy			
11.23	Assisting for bronchoscopy			
12	Management of Neurological Alterations			
12.1	Sensory stimulation			
12.2	Consciousness/Coma status monitoring			
12.3	Brain death evaluation			
13	Management of Genitourinary Alterations			
13.1	Cannulating for hemodilysis			
13.2	Starting and closing of hemodialysis			
13.3	Care of patient on hemodialysis			
13.4	Initiating peritoneal dialysis			
13.5	Care of patient on peritoneal dialysis			

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13.6	Calculation of fluid replacement			
13.7	Care of patient with continuous urinary drainage			
14	Management of Gastrointestinal Alterations			
14.1	Estimation of dietary allowance			
14.2	Enteral nutrition			
14.2.1	NG feeding			
14.2.2	Gastrostomy / Jejunostomy feeding			
14.3	Test feeds			
14.4	Parenteral nutrition			
14.5	Therapeutic diet planning			
15	Management of Endocrine Alterations			
15.1	Titrating insulin			
15.2	Calculation of steroid administration			
16	Ordering procedures and investigations			

S.No.	S KILLS	NUMBER PERFORMED	DATE	SIGNATURE OF THE PRECEPTOR*
16.1	ECG			
16.2	ABG			
16.3	Chest X ray			
16.4	Ultrasound			
16.5	Biochemistry investigations			
16.6	Microbiology investigations			
17	Ordering Treatment			
17.1	Nebulization			
17.2	Chest physiotherapy			
17.3	Distal colostomy wash			
17.4	Insertion and removal of urinary catheter for female patients.			
17.5	Test feeds			
17.6	TEDS			
17.7	Surgical dressing			
17.8	Starting and closing dialysis			
17.9	Administration of TPN infusion with written order			
17.10	Magnesium Sulphate dressing for Thrombophlebitis / extravasation.			
17.11	Application of Icthammol Glycerin /			
17.12	Pin site care for patients on external fixators			

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17.13	Isometric and isotonic exercises			
17.14	Hot and cold applications			

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

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Appendix 3

CLINICAL REQUIREMENTS FOR NP CRITICAL CARE NURSING PROGRAM

S.No.	CLINICAL REQUIREMENT	DATE	SIGNATURE OF THE PRECEPTOR
I	**Clinical Conference**		
	Drug studies on standing orders		
II	**Case/ Clinical Presentation**		
III	**Nursing Rounds**		
IV	**Clinical Seminar**		
V	**Journal Club**		
VI	**Nursing Process(NP)/Care study Report**		
VII	**Advanced Health Assessment**		
VIII	**Faculty Lecture**		
IX	**Self directed learning**		

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X	**Written Assignment**		

S.No.	CLINICAL REQUIREMENT	DATE	SIGNATURE OF THE PRECEPTOR
XI	**Case study analysis**		
XII	**Workshop**		

The number under each category will be finalized based on implementation plan of theory, practical and clinical.

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Appendix 4

STANDING ORDERS

NURSE PRACTITIONER IN CRITICAL CARE

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 protocols/standing orders. They will also be permitted to order diagnostic tests/procedures and therapies

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)

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Anticholinergic

12. Atropine Sulphate

Antihistamine

13. Avil

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Antihypertensive

14. Clonidine
15. Glycerinetrinitrate
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 Proataminesulphate	Digoxin Tranexamic acid Verapamil	Sodium nitroprusside Largactil Amrinone Milrinone Decadron	Sorbitrate Angised Streptokinase Urokinase Elaxime

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

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The following investigations and therapies may be ordered by the Nurse Practitioner

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 ▪ Administration of TPN infusion with written order ▪ Application of Icthammol Glycerin / Magnesium Sulphate dressing for Thrombophlebitis / extravasation. ▪ Pin site care for patients on external fixators ▪ Isometric and isotonic exercises

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