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**MAHATMA GANDHI UNIVERSITY**  
*of*  
**MEDICAL SCIENCES & TECHNOLOGY**  
SITAPURA, JAIPUR



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**MGUMST**

**UPGCC - CRITICAL CARE NURSING**  
**(One Year Certificate Course)**



**MAHATMA GANDHI UNIVERSITY**  
*of*  
**MEDICAL SCIENCES & TECHNOLOGY**  
SITAPURA, JAIPUR

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MAHATMA GANDHI UNIVERSITY  
of  
MEDICAL SCIENCES & TECHNOLOGY  
JAIPUR

# ***Syllabus***

**UPGCC - Critical Care Nursing  
(One Year Certificate Course)**

**UPGCC  
Critical Care Nursing**

**Edition 2015**

## **NOTICE**

1. Amendments made by the Board of Management of the University in Rules/Regulations of Post Graduate Medical Courses shall automatically apply to the Rules/Regulations of the Mahatma Gandhi University of Medical Sciences & Technology.
2. The University reserves the right to make changes in the syllabus/books/ guidelines, fee-structure or any other information at any time without prior notice. The decision of the University shall be binding on all.
3. The Jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only.

## One year Certificate course

### UNIVERSITY POST GRADUATE CERTIFICATE COURSE IN CRITICAL CARE NURSING (9600)

#### SCHEME OF EXAMINATION

##### 1. Theory:

- (a) There will be two Theory papers examination at the end of the academic year. Each Theory paper examination shall be of 3 hours duration and of maximum marks 80.
- (b) For each question paper there shall be a separate Internal Examiner. These papers shall be evaluated by the concerned Internal Examiners (Papers Setters).
- (c) The Paper Setter shall set the questions within the prescribed course of study of the concerned paper. There will be a set pattern of question papers duly approved by Academic Council. Model question paper for examination is annexed herewith.
- (d) It is to be noted that the Internal Examiners shall be appointed by the President of the University in consultation with the respective Coordinator of the course. This exercise shall be conducted through the office of the Controller of the Examinations of the University.
- (e) **Internal Assessment:** Internal assessment shall be of 20 marks for Each Theory paper.
- (f) **Passing Marks:** A candidate will have to obtain at least 50% marks in each Theory paper to pass. This means that he will have to score 50 marks in each paper. This shall include the marks obtained in Theory paper of 80 marks and internal assessment for that paper of 20 marks (Marks obtained in Theory paper + Marks obtained in internal assessment = the Total Marks obtained in each paper).

##### 2. Practical and Viva-Voce Examination:

There shall be one practical and viva-voce examination. It shall be conducted after the Theory examination is over. The pattern shall be as follows –

- (a) The practical and viva voce examination shall be conducted by one External and two Internal examiners. The Internal examiners shall be appointed by the President of the University in consultation with the respective Coordinator of the course. The External examiner shall also be appointed by the President out of the panel of names submitted by the Coordinator of the course through the Controller of Examinations to the President. The President may or may not consult the Coordinator before the appointment of the External practical examiner.
- (b) Total marks of the practical examination shall be equivalent to the total marks put together of the number of Theory papers in the course. It shall mean that it shall be 200.
- (c) It shall be left to the examiners – Internals and the External, to examine and evaluate the students in practical in the way they wish and award the

marks without giving any specific details. The total marks obtained by the candidate in the practical examination shall be the aggregate of the marks awarded by the three practical examiners (2 Internals and 1 External) put together as one figure. This shall then be submitted to the University.

- (d) A student shall be required to obtain a minimum of 50% pass marks in the practical examination. This means 100 out of 200.
- (e) A candidate who fails to obtain 50% marks shall be declared failed in the practical examination.

##### 3. Result:

A candidate will have to obtain at least 50% marks separately in each Theory paper and a minimum of 50% marks in the practical examination for him to be declared pass.

##### 4. Supplementary Examination:

- (a) Eligibility for the failed candidates to appear at the supplementary examination shall be as below:
  - i. Failed in Theory Paper(s) and failed in Practical – shall reappear in the respective failed Theory paper(s) and Practical examination.
  - ii. Failed in Theory paper/papers and passed in Practical examination – shall reappear only in the concerned failed Theory paper(s).
  - iii. Passed Theory papers but failed in Practical – shall reappear only in the Practical Examination.
- (b) There shall be a supplementary examination within two months of the declaration of the result of the main examination. Internal assessment marks obtained in main examination in the concerned failed paper/papers shall be carried forward for working out the result of supplementary Theory paper(s) examination. Such candidate who has secured less than 50% marks in the internal assessment will be allowed to improve his internal assessment marks in the repeat supplementary internal assessment examination.
- (c) Marks secured by the candidate in the main examination passed Theory paper(s) and/or practical of the main examination, as the case may be, will be carried forward for working out his result.
- (d) **Result -**
  - i. A candidate obtaining at least 50% marks in the supplementary Theory paper(s) and 50% marks in the supplementary practical examination, as the case may be, shall be declared successful.
  - ii. A candidate who has failed in supplementary theory paper(s) examination shall have to reappear only in the failed theory paper(s) at the next main examination.
  - iii. A candidate who has failed in supplementary practical examination shall have to reappear both in theory (all papers) and practical at the next main examination.
- (e) **No revaluation** of answer books either of main or of the supplementary examination shall be permitted. The candidates may however apply for scrutiny of marks as per rules.

- (f) The candidate will be allowed to avail maximum **four attempts** including supplementary (one main + one supplementary + one main + one supplementary) to pass the examination. After that he will have to leave the course. Non-appearance at an examination shall be counted an attempt.

**5. Result-Division:** Successful candidates will be categorized as under –

i.	Those, securing 50% and above but less than 60% in the aggregate marks	-	Pass
ii.	Those, securing 60% and above but less than 75% in the aggregate marks with I Division	-	Pass
iii.	Those, securing 75% and above in the aggregate marks	-	Pass with Honours

**UNIVERSITY POST GRADUATE CERTIFICATE COURSE IN  
CRITICAL CARE NURSING (9600)**

**1. DURATION OF THE COURSE:** 1 year

**2. ELIGIBILITY :** GNM / B.Sc. Nursing

**3. OBJECTIVES:**

- (1) At the end of the course the student will be able to develop an understanding of philosophy, principles, methods and issues, management, education and research in critical care nursing.
- (2) Furthermore, this course will enable him to develop skills and attitude in providing competent critical care nursing.

**4. SYLLABUS:**

Subject	Maximum Marks		
	Theory	I. Ass.	Practical
<b>Paper I (9610) - Critical Care Nursing – I</b>	80	20	200
<b>Paper II (9620) - Critical Care Nursing – II</b>	80	20	

**4.1 Theory:**

**Paper I (9610) - Critical Care Nursing-I**

**Physiology**

- (1) Individual differences
- (2) Learning, Motivation, attention & perception
- (3) Emotions
- (4) Human behavior & needs in crisis
- (5) Stress & coping in crisis situations
- (6) Leadership
- (7) Communication and IPR
- (8) Counseling
- (9) Attitudes and humanizing care

**Sociology**

- (1) Social organization & community resources
- (2) Leadership roles in community
- (3) Family and family relationships
- (4) Socio cultural influences

**Microbiology**

- (1) Immunity
- (2) Infection

- (3) Principles of asepsis, Sterilization & disinfection
- (4) Diagnostic tests in Microbiology & related nurses responsibility
- (5) Standard safety measures and biomedical waste management

### **Applied Anatomy & Physiology**

- (1) Neurological system
- (2) Respiratory system
- (3) Cardiovascular system
- (4) Endocrine system
- (5) Musculoskeletal system
- (6) Genitourinary system
- (7) Reproductive system
- (8) Sensory organs

### **Pharmacology**

- (1) Pharmacokinetics
- (2) Analgesics / Anti inflammatory agents
- (3) Antibiotics, antiseptics
- (4) Drug reaction & toxicity
- (5) Drugs used in critical care unit (inclusive of ionotropic)
- (6) Drugs used in various body systems
- (7) Blood and blood components
- (8) Principles of drug administration role of nurses and care of drugs

### **Introduction to Critical Care nursing**

- (1) Historical review
- (2) Concepts of critical care nursing
- (3) Principles of critical care nursing
- (4) Scope of critical care nursing
- (5) Critical care unit set up including equipments, supplies, use and care of various type of monitors, ventilators
- (6) Flow sheets
- (7) Concept of Holistic care applied to critical care nursing practice
- (8) Psychophysiological & psychosocial impact of critical care unit on patient:
- (9) Risk factor, Assessment of patients, Critical care psychosis , Prevention & nursing care unit, Caring for the patient affected with Psychophysiological & psychosocial problems of critical care unit, Caring for the patient's family, family teaching
- (10) The dynamics of healing in critical care unit:
  - (a) Dynamics of touch, Relaxation, Music therapy, Guided Imagery Stress and burnout syndrome among health team members.

### **Pain Management**

- (1) Pain & sedation in critically ill:
  - (a) Theories of pain, Types of pain, Pain assessment, Systemic responses to pain, pain management Sedation in critically ill patients, Placebo effect

### **Infection control in intensive care**

- (1) Nosocomial infection in intensive care unit; methyl resistant staphylococcus aureus (MRSA), Disinfection, Sterilization, Standard Precautions, Prophylaxis for staff.

### **Introduction to Nursing Process**

- (1) Assessment
- (2) Nursing diagnosis
- (3) Nursing care plan
- (4) Implementation
- (5) Evaluation
- (6) Communication Skills & IPR

### **Process & methods**

- (1) Establishing & maintaining good IPR & communication with family, staff and colleagues
- (2) Multidisciplinary team & role of nurses
- (3) Guidance & Counseling

### **Nutritional Management in the critically ill patient**

- (1) Assessing nutritional status of patient
- (2) Implications of under nourishment in critically ill patients.
- (3) Fluid & electrolyte management
- (4) Administering nutrition support,
- (5) Therapeutic diet – Various disease conditions, Total parenteral and enteral nutrition

### **Care of dying patients**

- (1) Spiritual support to the dying
- (2) Grief and grieving process
- (3) Bereavement support
- (4) Organ donation & Counseling
- (5) Care of dead

### **Paper II (9620) - Critical Care Nursing-II**

#### **Gastrointestinal System**

- (1) Causes, Pathophysiology, Clinical types, Clinical features, diagnosis, Prognosis, Management: Medical, Surgical and Nursing management of:
  - (a) Acute Gastrointestinal Bleeding,
  - (b) Hepatic Disorders: - Fulminant hepatic failure, Hepatic encephalopathy, Acute Pancreatitis, Acute intestinal obstruction, Perforative peritonitis.

#### **Renal System**

- (1) Causes, Pathophysiology, Clinical types, Clinical features, diagnosis,

Prognosis, Management: Medical Surgical and Nursing management of:-

- (a) Acute Renal Failure, Chronic renal failure, Acute tubular necrosis, Bladder trauma
- (2) Management Modalities
  - (a) Hemodialysis, Peritoneal Dialysis, Continuous Ambulatory Peritoneal Dialysis, Continuous Arterio venous Hemodialysis, Renal Transplant

### **Nervous System**

- (1) Causes, Pathophysiology, Clinical types, Clinical features, diagnosis, Prognosis, Management: Medical Surgical and Nursing management of:
  - (a) Common Neurological Disorders:-  
Cerebrovascular disease, Cerebrovascular accident, Seizure disorders, Guillain-Barre Syndrome, Myasthenia Gravis, Coma, Persistent vegetative state, Encephalopathy, Head injury, Spinal Cord Injury
- (2) Management Modalities
  - (a) Assessment of Intracranial pressure, Management of intracranial hypertension, Craniotomy
- (3) Problems associated with neurological disorders
  - (a) Unconsciousness, Herniation syndrome

### **Endocrine System**

- (1) Causes, Pathophysiology, Clinical types, Clinical features, diagnosis Prognosis, Management: Medical, Surgical and Nursing management of
  - (a) Hypoglycemia, Diabetic Ketoacidosis, Thyroid crisis, Myxedema coma, Adrenal crisis, Syndrome of Inappropriate / Hypersecretion of Antidiuretic Hormone (SIADH)

### **Management of other Emergency Conditions**

- (1) Trauma
  - (a) Mechanism of injury, Thoracic injuries, Abdominal injuries, Pelvic fractures, Complications of trauma, Head injuries
- (2) Shock
  - (a) Shock syndrome, Hypovolemic shock, Cardiogenic shock, Anaphylactic shock, Neurogenic shock, Septic shock
- (3) Systemic Inflammatory Response
  - (a) The inflammatory response, Multiple organ dysfunction syndrome
- (4) Disseminated Intravascular Coagulation, Drug Overdose and Poisoning, AIDS: Acquired Immunodeficiency Syndrome

### **Intensive Cardiothoracic Nursing**

- (1) Principles of Nursing in caring for patients with Cardio thoracic disorders
- (2) Assessment: Cardiovascular System
  - (a) Heart sounds, Diagnostic studies:- Cardiac enzymes studies, Electrocardiographic monitoring, Holter monitoring, Stress test, Echo cardiography, Coronary angiography, Nuclear medicine studies
- (3) Causes, Pathophysiology, Clinical types, Clinical features, diagnosis,

Prognosis, Management: medical surgical and Nursing management of:-

- (a) Hypertensive crisis, Coronary artery disease, Acute Myocardial Infarction, Cardiomyopathy, Deep vein thrombosis, Valvular diseases, Heart block, Cardiac arrhythmias & conduction disturbances, Aneurysms, Endocarditis, Heart failure, Cardio pulmonary resuscitation
- (b) BCLS / ACLS
- (4) Management Modalities
  - (a) Thrombolytic therapy, Pacemaker – Temporary & Permanent, Percutaneous transluminal coronary angioplasty, Cardioversion, Intra Aortic Balloon Pulsations, Defibrillations, Cardiac surgeries, Coronary Artery Bypass Grafts (CABG / MICAS), Valvular surgeries, heart Transplantation, Autologous Blood Transfusion, Radiofrequency Catheter Ablation.

### **Respiratory System**

- (1) Acid – base balance & imbalance
- (2) Assessment: History & Physical Examination – Diagnostic Tests:- Pulse Oximetry, End-Tidal Carbon Dioxide Monitoring, Arterial blood gas studies, Chest Radiography, Pulmonary Angiography, Bronchoscopy, Pulmonary function Test, Ventilation perfusion scan, Lung ventilation scan.
- (3) Causes, Pathophysiology, Clinical types, Clinical features, Prognosis, Management: medical, surgical and Nursing management of common pulmonary Disorders: -
  - (a) Pneumonia, Status asthmaticus, Interstitial lung disease, Pleural effusion, Chronic obstructive pulmonary disease, Pulmonary tuberculosis, Pulmonary edema, Atelectasis, Pulmonary embolism, Acute respiratory distress syndrome (ARDS), Chest Trauma, Haemothorax, Pneumothorax
- (4) Management Modalities:
  - (a) Airway Management
- (5) Ventilatory Management:-
  - (a) Invasive, non-invasive, long term mechanical ventilations
- (6) Bronchial Hygiene:
  - (a) Nebulization, deep breathing exercise, chest physiotherapy, postural drainage, Inter Costal Drainage, Thoracic surgeries

### **Burns**

- (1) Clinical types, classification, Pathophysiology, Clinical features, assessment, Diagnosis, Prognosis, Management: medical, surgical and Nursing management of burns
- (2) Fluid and electrolyte therapy-calculation of fluids and its administration
- (3) Pain management
- (4) Wound care
- (5) Infection control
- (6) Prevention and management of burn complications
- (7) Grafts and flaps
- (8) Reconstructive surgery
- (9) Rehabilitation

### Neonatal Paediatric Nursing

- (1) Causes, Pathophysiology, Clinical types, Clinical features, diagnosis, Prognosis, Management: medical, surgical and Nursing management of -
  - (a) Neonatal emergencies
  - (b) Assessment of newborn, Low Birth Weight infant, Asphyxia Neonatorum, pathological Jaundice in Neonates, Neonatal seizures, Metabolic disorders, Intra cranial Hemorrhage, Neonatal Sepsis, RDS/HMD (Respiratory Distress Syndrome / Hyaline Membrane Disease), Status Asthmaticus
  - (c) Congenital disorders:-  
Cyanotic heart disease, Tracheo Oesophageal fistula, congenital hypertrophic pyloric stenosis, imperforate anus
- (2) Pediatric emergencies
  - (a) Dehydration, Acute Broncho pneumonia, Acute respiratory distress syndrome, Poisoning, Foreign bodies
- (3) Psychosocial issues of the child & family
- (4) Management modalities
  - (a) Management of hypothermia, ventilatory management

### Obstetrical emergencies

- (1) Causes, Pathophysiology, Clinical types, Clinical features, diagnosis, Prognosis, Management: medical, surgical and Nursing management of:
  - (a) Antepartum haemorrhage, Preeclampsia, Eclampsia, Obstructed labour and ruptured uterus, Post partum Haemorrhage, Puerperal sepsis, obstetrical shock

### 4.2 Practical:

#### Essential critical care nursing skills

- (1) Procedures Observed:
  - (a) Echo cardiogram
  - (b) Ultrasound
  - (c) Monitoring ICP
  - (d) CT SCAN
  - (e) MRI
  - (f) Pet SCAN
  - (g) Angiography
  - (h) Cardiac catheterization
  - (I) Angioplasty
  - (j) Various Surgeries
  - (k) Any other
- (2) Procedures Assisted:
  - (a) Monitoring ICP
  - (b) Advanced life support system
  - (c) Arterial Blood Gas
  - (d) ECG Recording
  - (e) Arterial catheterization

- (f) Chest tube insertion
  - (g) Endotracheal intubation
  - (h) Ventilation
  - (i) Central line, Arterial Line, Cardiac pacing
  - (j) Use of defibrillator, Cardiopulmonary resuscitation
  - (k) Endoscopy
  - (l) Dialysis-Hemodialysis and peritoneal dialysis
  - (m) Intra venous pyelography (IVP)
  - (n) EEG
  - (o) Bronchoscopy
- (3) Procedures Performed:
    - (a) Neurological assessment; Glasgow coma scale
    - (b) Pulse oximetry,
    - (c) Arterial B P monitoring
    - (d) Venous access, ABG collection monitoring
    - (e) Oxygen administration, Suctioning, Respiratory therapy, Tracheotomy toilet
  - (f) Airway Management
    - i. Application of Oro Pharyngeal Airway
    - ii. Oxygen therapy
    - iii. CPAP (Continuous Positive Airway Pressure)
    - iv. Care of Tracheostomy
    - v. Endotracheal Intubation
  - (g) Care of intercostal drainage
  - (h) Nebulisation
  - (i) Chest physiotherapy
  - (j) Monitoring of Critically ill patients – clinically & with monitors, CRT (Capillary Refill Time), ECG
  - (k) Gastric Lavage
  - (l) Setting of Ventilators
  - (m) Assessment of Neonates: Identification & assessment of risk factors, APGAR Score
  - (n) Admission & discharge of critically ill patients
  - (o) OG (Orogastric) tube insertion,
  - (p) Thermoregulation – management of thermoregulation & control, use of hypothermia machines
  - (q) Administration of Drugs: I/M, IV injection, IV Cannulation & fixation infusion pump, Calculation of dosages, Monitoring fluid therapy,
  - (r) Administration of Blood and its components.
  - (s) Procedures for prevention of infections: Hand washing, disinfections & sterilization, surveillance, fumigation
  - (t) Collection of specimens related to critical care
  - (u) Burns: assessment, calculation of fluid-crystalloid and colloid
  - (v) Maintenance of intake and output chart.
  - (w) Wound dressing and prevention of contractures
  - (x) Rehabilitation

**University Post Graduate Certificate  
Course in Critical Care Nursing  
(Main) Examination Month Year  
Paper I  
Critical Care Nursing-I  
Time: Three Hours  
Maximum Marks: 80**

**University Post Graduate Certificate Course  
in Critical Care Nursing  
(Main) Examination Month Year  
Paper I  
Critical Care Nursing-I  
Time: Three Hours  
Maximum Marks: 80**

Q.No.1 Modified Essay Type question	20
Q.No.2 Modified Essay Type question	20
Q.No.3 Short Notes (Any five out of seven)	40

Q.No.1 Discuss the importance of total parental nutrition to critically ill patient in ICU.	20
Q.No.2 Write in detail the standardized safety measures in biomedical waste management	20
Q.No.3 Short Notes (Any five out of seven)	40
(a) Differentiate between antiseptic & disinfectant.	
(b) Define Nursing Diagnosis & Medical diagnosis.	
(c) Define Hypocalcaemia & its dietary management.	
(d) Name the components of communication and role of receiver.	
(e) Scope of critical care nursing.	
(f) Define Pharmacokinetics & Pharmacodynamics	
(g) Measures of pain assessment	



University Post Graduate Certificate Course  
in Critical Care Nursing  
(Main) Examination Month Year  
Paper II  
Critical Care Nursing-II  
Time: Three Hours  
Maximum Marks: 80

Q.No.1 Modified Essay Type question	20
Q.No.2 Modified Essay Type question	20
Q.No.3 Short Notes (Any five out of seven)	40

University Post Graduate Certificate Course  
in Critical Care Nursing  
(Main) Examination Month Year  
Paper II  
Critical Care Nursing-II  
Time: Three Hours  
Maximum Marks: 80

Q.No.1 Define AIDS. Discuss the role of community health nurse in treatment of patient with AIDS and imparting health education to public regarding prevention of spread of AIDS.	20
Q.No.2 Explain the care of new born baby just after birth and for the first 24 hrs.	20
Q.No.3 Short Notes (Any five out of seven) (a) Differentiate between Haemodialysis & Peritoneal dialysis. (b) List causes of Hypovolemic shock. (c) Differentiate between Epileptic & Hysterical fit. (d) Role of Nurse in Cardio pulmonary resuscitation. (e) Toxic effects of Digoxin (f) Care of ventilator (g) Role of nurse in preventing Ventilator Acquired Pneumonia	40