

CHAPTER ONE

Educational Program of the Master's Degree in Critical Care Nursing

Educational Program of the Master's Degree in Critical Care Nursing
at the Master of Science Level

Introduction

Critical care nursing is one of the increasingly important needs of a developing society such as Iran. On the one hand, the growing trend of industrialization and the development of healthcare technology, and on the other hand, the emergence of new health problems, increasing accidents and disasters, natural disasters, and the prevalence of acute illnesses and critically ill patients, have led to an increasing need for the development of intensive care units and nursing care services in these units.

Considering the unique role of the critical care nurse in restoring the health of critically ill patients, as well as the need for specialized and scientific critical and emergency nursing care, the Master's degree program in Critical Care Nursing is necessary to provide specialized and high-quality care to patients.

Considering the need to revise educational programs after 4 to 6 years of implementation, major changes in medical technology and equipment, and decisions made by the principal policymakers regarding educational programs, revision of the program was placed on the agenda of the Nursing Sciences Development Working Group. The responsibility for revising the educational program of the Master's degree in Critical Care Nursing was assigned to the School of Nursing and Midwifery of Isfahan University of Medical Sciences.

For this purpose, a Critical Care Nursing Curriculum Revision Committee was established, and the present program was revised in accordance with scientific advances and the needs of society. In revising this program, efforts were made to preserve the overall framework of nursing care while adapting the program to the cultural conditions of society, strengthening theoretical knowledge and clinical performance, utilizing nursing models, and developing professional competencies, so that students would be trained to provide appropriate and competent services.

Initially, the Critical Care Group of the School established a committee and, through several meetings, determined the framework for revising the program. Subsequently, survey forms were sent to the schools responsible for conducting these programs in Schools of Nursing and Midwifery, and the views of the schools regarding the courses and their contents were obtained.

Then, through expert review, an initial draft of the curriculum was developed with consideration of international examples as well as domestic needs and was again sent to the relevant schools to obtain their opinions.

After receiving and compiling the comments and revising the draft, representatives of all schools responsible for the program were invited to a two-day meeting in Tir 1396 to finalize the curriculum. At this meeting, which was attended by more than thirty representatives from nursing schools across the country, the revised educational program for the Master's degree in Critical Care Nursing was finalized.

Title and Degree of the Program in Persian and English

Master of Science in Critical Care Nursing (M.Sc.)

Field: Critical Care Nursing

Definition of the Field

Critical care nursing is a specialized branch of nursing that deals with life-threatening conditions and advanced and vital interventions.

A critical care nurse is a professional nurse who is responsible for ensuring the provision of advanced, high-quality nursing care to critically ill patients and their families.

Admission Requirements and Procedure

In addition to possessing the general qualifications required for admission to graduate programs, applicants must meet the following requirements:

A.

Holding a Bachelor's degree in **Nursing, Anesthesia, or Operating Room Technology**, obtained inside or outside the country and approved by the Ministry of Health and Medical Education.

B.

Having **two years of clinical work experience** with a Bachelor's degree in hospital wards or operating rooms.

History and Development of the Program in the World and Iran

During the past decade, a number of prestigious universities around the world, including **Nottingham, James Cook University (JCU), University of California at San Francisco (UCSF), Johns Hopkins, and Stanford**, have paid particular attention to establishing university-level educational programs for clinical nurses.

As a result, fields such as advanced nursing, critical care nursing, and subspecialties of critical care nursing, including cardiovascular, pulmonary, renal, and other related areas, have been established.

In Iran, in response to the need for the provision of critical care, particular attention has been paid to this issue during the past three decades. Accordingly, simultaneous with the establishment of intensive care units, relevant educational programs have been conducted in some centers.

Since **1368**, the School of Nursing and Midwifery of Iran University of Medical Sciences has conducted six-month critical care nursing programs.

At present, six-month specialized critical care nursing programs are also being offered in some educational centers, including specialized courses in ICU and CCU.

In **1387**, the first Master's degree program in Critical Care Nursing was established in nursing schools based on authorization from the Ministry of Health.

Employment Opportunities for Graduates

Graduates of this program may work in the following positions:

- Hospital intensive care units, including various types of **ICUs, CCUs, hemodialysis units, emergency departments, recovery rooms, and acute care centers in hospices.**
- **Palliative care centers.**
- **Research institutes, research centers, knowledge-based companies, growth centers, and technology centers.**
- Other settings requiring specialized nursing care.

- Provision of specialized care at home.
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Philosophy

Values and Beliefs

The following values are emphasized in the development of this program:

- Human beings, as the vicegerents of God, possess dignity, sanctity, respect, and a high status, and have rights under all circumstances, including during acute illness.
 - Belief in scientific authority and striving to achieve the highest quality of care based on knowledge and wisdom in critical care nursing are among the fundamental values of nursing.
 - **The right to receive high-quality critical care services:** Receiving appropriate education and participating in decisions related to nursing care and medical treatment in intensive care units are among the fundamental rights of patients.
 - Nurses, on the one hand, deal with human health as a multidimensional phenomenon involving physical, psychological, social, and ethical characteristics and, on the other hand, based on the Islamic value system governing society, are obliged to respect human rights and establish social justice. Therefore, through appropriate nursing services and provision of nursing care to critically ill patients, nurses should strive to realize the above-mentioned values and beliefs.
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Values Emphasized in the Revision of the Program

The following values are emphasized in the revision of this program:

1. A **holistic approach** should be used in the assessment and care of patients. In a holistic approach, attention is paid not only to patients' daily functional needs but also to their physical, social, psychological, emotional, and spiritual needs.
2. Since the provision of holistic care requires interprofessional collaboration and teamwork, emphasis is placed on collaborative approaches to providing care.
3. Providing appropriate and high-quality care requires the acquisition of practical skills. Therefore, the revised program emphasizes the acquisition of practical skills, and the practical skills that learners are expected to acquire in each course have been specified.
4. Emphasis is placed on developing learner independence and skill acquisition. Therefore, a course entitled **Clinical Practicum** has been included to assist learners in developing practical skills.

Vision

Within the next **10 years**, the Master's degree program in Critical Care Nursing in the country will achieve a position consistent with international standards through increased utilization of managerial, educational, and research approaches in critical care nursing and by reducing mortality among critically ill patients to a level comparable with the leading countries in the region.

Mission

The mission of the Master's degree program in Critical Care Nursing is to train competent graduates with the necessary capabilities to promote and optimize nursing care for critically ill patients and patients requiring critical care, resulting in reductions in mortality and complications among these patients.

In this regard, graduates of this program will be able to provide appropriate consultation to managers and health-system policymakers concerning the needs and problems of patients hospitalized in these units and to improve the quality of nursing care.

General Objectives

The overall objective of the Master's degree program in Critical Care Nursing is to train graduates who possess the necessary **knowledge, attitudes, performance, competencies, and advanced competencies**, including:

- Professional behavior
- Communication skills
- Information technology skills
- Lifelong self-directed learning
- Research
- Management and quality improvement
- Creative critical thinking
- Problem-solving skills in critical situations

These competencies are intended to enable graduates to improve the quality of care provided to critically ill patients and patients requiring critical care.

Roles of Graduates in Society

Graduates of this program will have the following roles:

- **Care provider**
 - **Educator**
 - **Researcher**
 - **Advocate/supporter**
 - **Consultant**
 - **Manager**
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Professional Responsibilities of Graduates

1. Caregiving Role

Graduates are expected to:

- Skillfully provide nursing care and implement the necessary nursing interventions for patients requiring critical care.
- Perform the necessary **non-invasive assessments** and assist in performing invasive assessments of patients hospitalized in critical care units.
- Interpret and analyze collected data concerning patients requiring critical care.
- Apply professional rules and conduct when interacting with colleagues, patients, and their families and companions.

2. Educational Role

Graduates are expected to:

- Continuously update the knowledge and skills of colleagues using conventional continuing-education methods.
- Provide education to other personnel involved in the care of critically ill patients in the unit.
- Provide necessary education to patients, companions, and their families in critical care units.

3. Research Role

Graduates are expected to:

- Design and conduct applied research concerning problems and challenges existing in critical care units.
- Produce evidence and articles in معتبر/credible sources concerning the care of critically ill patients.
- Conduct joint projects with other centers and produce evidence that can be generalized to the country as a whole.
- Establish relationships with research centers inside and outside the country in the field of critical care.

4. Management Role

Graduates are expected to:

- Analyze the nursing service-delivery system for critically ill patients in critical care units.
- Optimize the process of providing nursing services to critically ill patients through the design and implementation of interventions.
- Use managerial tools and methods to improve factors affecting nursing care and reduce mortality, complications, and disability among critically ill patients.

Expected Outcomes for Graduates

Graduates of this program should be able to:

- Address the needs and problems of patients hospitalized in critical care units and their families.
 - Possess sufficient knowledge regarding the mechanisms of action, adverse effects, drug interactions, and contraindications of medications commonly used in critical care units and, through patient monitoring, minimize adverse drug effects and increase the effectiveness of pharmacological treatment.
 - Work with invasive devices and equipment used in critical care units.
 - Develop and implement research projects in the field of critical care.
 - Plan, implement, and evaluate education for students, colleagues, patients, and their families.
 - Participate in health-policy making related to improving the health of patients requiring critical care.
 - Contribute significantly to the improvement and specialization of critical care services in relevant units.
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Expected Competencies and Skills of Graduates

A. Expected General Competencies

Graduates are expected to possess:

- Communication and negotiation skills
- Education and teaching skills
- Cognitive skills
- Management skills
- Ability to use care patterns and models
- Teamwork and interprofessional collaboration skills
- Critical thinking and problem-solving skills
- Evidence-based practice
- Professionalism

Important note: The above skills must be developed throughout the program.

Comparative Table of Professional Responsibilities, Expected Specific Competencies, and Related Course Codes

A. Assessment and Diagnosis

Identification of Needs

Identify the needs and problems of patients hospitalized in critical care units and their families.

Identification of Patient Problems

Identify patient problems in the form of appropriate nursing diagnoses for each patient in the critical care unit, based on priorities.

Assessment of Equipment and Devices

Collect and analyze the necessary information concerning invasive devices and equipment used in critical care units.

Identification of Equipment-Related Problems

Identify problems related to the application and use of equipment in critical care units.

Patient Assessment

Perform the necessary non-invasive assessments and assist in performing invasive assessments of patients requiring critical care.

Interpretation and Analysis

Interpret and analyze the data collected concerning patients requiring critical care.

B. Thinking and Analysis

Graduates should be able to:

- Interpret patients' clinical data and data obtained from monitoring and care devices.
 - Interpret laboratory tests and diagnostic procedures.
 - Calculate doses of commonly used medications in critical care units.
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C. Planning and Implementation of the Care Plan

Graduates should be able to:

- Design and conduct applied research concerning problems and challenges existing in critical care units.
 - Produce evidence and articles in معتبر/credible sources concerning the care of critically ill patients.
 - Conduct joint projects with other centers and generate evidence applicable to the country as a whole.
 - Establish communication with research centers inside and outside the country concerning the care of critically ill patients.
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Practical Skills Expected from Graduates

It is essential that graduates of this program master **all practical skills taught at the Bachelor's level**, with particular emphasis on the following skills.

Airway and Mechanical Ventilation

- Insertion of an **oropharyngeal airway**
- Insertion of a **nasopharyngeal airway**
- Open and closed suctioning of an endotracheal tube
- Monitoring cuff pressure of an endotracheal or tracheostomy tube
- Providing non-invasive mechanical ventilation using a mask
- Providing invasive mechanical ventilation using an appropriate ventilator
- Preparing a mechanical ventilator
- Intubation of patients using an endotracheal tube and tracheostomy tube
- Extubation of patients with an endotracheal or tracheostomy tube
- Weaning patients from mechanical ventilation
- Performing chest physiotherapy
- Performing respiratory physiotherapy

Thoracic and Respiratory Care

- Caring for a patient with a chest tube
- Removal of a chest tube
- Insertion, monitoring, and interpretation of data from a pulmonary artery catheter
- Working with sedation-related equipment and tools
- Assessing a patient's readiness for weaning from mechanical ventilation using the appropriate assessment tool
- Providing education on respiratory exercises
- Working with a portable mechanical ventilator
- Interpreting pulse oximetry data
- Interpreting capnography data
- Performing bronchoscopy
- Working with advanced oxygen-therapy devices, including Venturi masks, nebulizers, non-invasive ventilation masks, and high-flow systems
- Performing spirometry

Cardiovascular Care

- Working with cardiac monitoring systems and modules
- Advanced interpretation of electrocardiograms
- Performing advanced cardiopulmonary resuscitation
- Cardioversion and defibrillation
- Working with an external pacemaker
- Echocardiography
- Angioplasty
- Working with an intra-aortic balloon pump
- Insertion of an intra-aortic balloon pump

- Management of patients with an intra-aortic balloon pump

Hemodynamic Monitoring

- Invasive blood-pressure monitoring
- Arterial cannulation
- Insertion of a central venous catheter
- Monitoring and interpretation of central venous pressure
- Invasive measurement of cardiac output
- Non-invasive measurement of cardiac output
- Interpretation of cardiac-output values
- Principles of using various infusion pumps and syringe pumps

Other Critical Care Skills

- Principles of various open-heart surgical procedures
- Working with an extracorporeal membrane oxygenation system (**ECMO**)
- Patient assessment using appropriate assessment tools
- Principles of using pumps for prevention of venous thrombosis
- Working with patient-controlled or specialized infusion pumps
- Monitoring level of consciousness using the **Glasgow Coma Scale (GCS)**
- Assessment of cranial nerves
- Assessment of brainstem function
- Interpretation of changes in vital signs in neurological disorders
- Interpretation of neurological criteria for determination of brain death
- Monitoring intracranial pressure
- Application of commonly used pain-control tools
- Assessment of the severity and prognosis of the patient's condition
- Transcranial Doppler ultrasound
- Computed tomography (**CT**) of the brain and spinal cord
- Electroencephalography (**EEG**)

Renal Replacement Therapies

- Preparing the hemodialysis machine
- Priming the hemodialysis machine
- Connecting the patient to hemodialysis
- Performing peritoneal dialysis
- Performing continuous renal replacement therapies (**CRRT**)

Note: Some of these procedures are performed when facilities and circumstances permit.

Important note: In order for the student to graduate, completion of the **Specialized Skills Logbook** is mandatory.

Educational Strategies

This program is based on the following educational strategies:

- **Task-based learning**
 - **Problem-based learning**
 - **Subject-based learning**
 - **Evidence-based learning**
 - **Competency-based professional education**
 - **Service-based learning**
 - **Holistic learning**
 - **Self-directed learning**
 - **Community-oriented learning**
 - **Hospital-based education**
 - **Systematic education**
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Educational Methods and Techniques

The following educational methods and techniques will mainly be used during this program:

- Various types of **intra-departmental, interdepartmental, hospital-based, interdisciplinary, interuniversity conferences, and seminars**
 - Small-group discussions
 - Educational workshops
 - Journal clubs
 - Book-reading sessions
 - Case presentations
 - Morning reports
 - Clinical and educational rounds
 - Outpatient education
 - Education in the operating room
 - Education in procedure rooms or laboratories
 - Use of simulation techniques and distance education according to available facilities
 - Participation in teaching junior-level students
 - Self-directed study
 - Other educational methods and techniques according to educational needs and objectives
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Ethical Expectations of Learners

Learners are expected to:

- Strictly observe the **Patient Rights Charter** attached to the program.
 - Strictly observe regulations concerning the **protection and safety of patients, personnel, and the work environment.**
 - Observe the regulations related to the relevant ethical code included in the attachments.
 - When conducting laboratory research involving animals, strictly observe the relevant ethical regulations.
 - Demonstrate **professionalism.**
 - Protect the resources and equipment with which they work under all circumstances.
 - Respect professors, staff, classmates, and other learners and contribute to creating a respectful atmosphere in the workplace.
 - Observe ethical and professional considerations when criticizing or evaluating the program.
 - Observe the principles of research ethics when conducting research related to the field.
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Learner Evaluation

A. Evaluation Methods

Students will be evaluated using the following methods:

- **Oral examination**
- **Computer-based interactive examination**
- **360-degree evaluation**
- **Portfolio and logbook assessment**
- Results of examinations
- Articles and research activities
- Commendations and notices/warnings

CHAPTER TWO

Minimum Educational Requirements of the Master's Degree Program in Critical Care Nursing

Minimum Educational Requirements of the Master's Degree Program in Critical Care Nursing

Faculty Members Required for the Program

The program requires full-time faculty members in accordance with the regulations of the Council for the Expansion of Universities of Medical Sciences, with a doctoral degree.

Supporting Specialties Required

The following clinical and basic-science specialties are required to support the program:

- Clinical groups of **Anesthesiology, Emergency Medicine, Infectious Diseases, Internal Medicine, and Surgery** from the School of Medicine.
- Basic-science groups including **Physiology, Pharmacology, Biostatistics and Research**.
- **Health Management and Policy** group.

Trained Personnel Required for Implementation of the Program

- Trained nursing personnel, preferably nurses holding a **Master's degree in Critical Care Nursing**, working in general and specialized wards and participating in the clinical training of students.

General Educational Spaces and Facilities Required

The following general educational spaces and facilities are required:

- Classrooms
- Clinical training/practicum rooms
- Adequate Internet bandwidth
- Conference halls
- Faculty offices
- Computer room
- Library and study room in the school and clinical settings

Specialized Spaces and Facilities Required

- **Specialized Clinical Skills Laboratory**
- Intensive care units, including:
- General ICU

- Neurological ICU
- Cardiac surgery ICU
- Hemodialysis unit
- Transplant unit
- Emergency department

Required Clinical/Educational Settings

The required clinical settings include:

- Inpatient medical and surgical wards
- Outpatient clinics
- Emergency departments
- Rehabilitation centers

Required Patient Population

The following patient populations are required for student education:

- Critically ill patients hospitalized in intensive care settings, including **ICU, CCU, hemodialysis units, and emergency departments**
- Patients in the terminal stages of life and patients approaching death who are hospitalized in intensive care units and hospices
- Patients undergoing invasive diagnostic and therapeutic procedures in general units

Major Specialized Equipment Required

The major capital equipment required includes:

- Mechanical ventilators
- Hemodialysis machines

- Cardiac, respiratory, and neurological monitoring systems
 - Defibrillators
 - Smart cardiopulmonary resuscitation mannequins
 - Intubation equipment
 - Resuscitation carts
 - Pacemakers
 - Specialized clinical equipment
 - Oxygen-therapy equipment
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CHAPTER THREE

Course and Curriculum Specifications of the Master's Degree Program in Critical Care Nursing

1. Program Specifications

Program title:

Master of Science in Critical Care Nursing

Program type:

Non-continuous Master's degree program

2. Duration and Structure of the Program

The duration and structure of the program are determined in accordance with the approved regulations of graduate education.

3. Total Number of Course Credits

The total number of credits in this program is **22 credits**, distributed as follows:

- **Compulsory specialized courses:** 16 credits

- **Elective specialized courses:** 2 credits
- **Thesis:** 4 credits

Total: 22 credits

In addition, **deficiency or compensatory courses** may be required according to the student's previous academic background.

Table A

Deficiency or Compensatory Courses

The following courses may be required as deficiency/compensatory courses according to the student's previous academic background:

1. **Information Technology**
2. **Advanced Research Methods**
3. **Statistics**
4. **Diagnostic Evaluation**
5. **Basic Nursing Concepts**
6. **Medical-Surgical Nursing**
7. **Clinical Practicum**

Students who have not previously completed the required background courses must complete the specified deficiency or compensatory courses.

Important note: Completion of the courses specified in the program as deficiency/compensatory courses is mandatory for students who require them.

For students entering the program from non-nursing Bachelor's fields such as **Anesthesia** or **Operating Room Technology**, the specified nursing courses based on

the undergraduate nursing curriculum must be completed as deficiency/compensatory courses.

Table B

Compulsory Specialized Courses

The compulsory specialized courses of the Master's degree program in Critical Care Nursing include:

1. **Nursing Law, Ethics, and Professional Relationships**
2. **Nursing Theories, Models, and Concepts**
3. **Critical Care Nursing I**
4. **Patient and Family Education**
5. **Advanced Nursing Care Management**
6. **Respiratory and Thoracic Critical Care**
7. **Clinical Practicum in Respiratory and Thoracic Critical Care**
8. **Cardiovascular Critical Care**
9. **Clinical Practicum in Cardiovascular Critical Care**
10. **Neurological and Psychiatric Critical Care**
11. **Clinical Practicum in Neurological and Psychiatric Critical Care**
12. **Gastrointestinal and Abdominal Surgery Critical Care**
13. **Renal and Urinary Tract Critical Care and Dialysis**
14. **Clinical Practicum in Renal and Urinary Tract Critical Care and Dialysis**
15. **Endocrine Critical Care**

The tables in the original document specify the number of theoretical and practical hours, prerequisites, and simultaneous requirements for each course.

Remaining Compulsory Specialized Courses

The continuation of the compulsory curriculum includes specialized clinical courses in the major areas of critical care nursing, together with their corresponding clinical practicums.

The courses are structured so that theoretical education is accompanied by clinical training and practical application in the relevant intensive care settings.

Table C

Elective Specialized Courses

Students are required to select **2 credits** from the following elective courses according to their educational needs and, where applicable, the subject of their thesis, with the approval of the academic supervisor and the Graduate Education Council of the university.

The elective courses include specialized care in:

- Specialized care in **ICU surgery**
- Specialized care in **Trauma ICU**
- Specialized care in **Medical ICU**
- Specialized care in **CCU**
- Specialized care in **Hemodialysis Units**
- Specialized care in the **Emergency Department**
- Specialized care in **Obstetrics and Gynecology**

The original table provides the course codes, credit hours, theoretical and practical hours, and prerequisite requirements for each elective course.

Educational Workshops

The following educational workshops are required during the Master's program in Critical Care Nursing:

Semester	Workshop	Duration
First semester	Documentation in Intensive Care Units	6 hours
First semester	Infection Control and Patient Safety	12 hours
Third/Fourth semesters	Management of Intensive Care Units	2 hours

Note 1: Completion of the above educational workshops is mandatory for students. Certificates of continuing education issued by universities are accepted.

Note 2: The above workshops will be designed and delivered by the relevant educational group in cooperation with specialists and other educational groups.

COURSE DESCRIPTIONS

Course: Information Technology

Credits: 1 credit

Type: 0.5 theoretical + 0.5 practical

Prerequisite/Co-requisite: None

General Objective

At the end of this course, students should become familiar with search engines and the roles of the five main components involved in their operation:

- Spider
- Crawler
- Indexer
- Database
- Ranker

Students should be able to recognize and compare the differences and capabilities of these components in different search engines.

They should also become familiar with advanced search methods and factors affecting information retrieval, including:

- Advanced searching
- Boolean search systems
- Keyword searching
- Internet search techniques
- Health and medical information resources

Students will also become familiar with important websites and databases in the fields of health and medicine, criteria for evaluating scientific articles and journals, author evaluation, and at least one reference-management software package.

Course Description

Students will be introduced to scientific search methods, problems encountered when searching the Internet, and methods for overcoming these problems.

They will become familiar with the concepts used in evaluating scientific articles and journals and with searching selected websites of major publishers.

At the end of the course, students should be able to conduct organized searches using browsers and databases and prepare themselves for writing their thesis, scientific articles, and reports.

Main Topics

- Introduction to general search engines and comparison of different search engines using identical searches
- Practical performance of advanced and Boolean searches
- Understanding the roles of spiders, crawlers, indexers, databases, and rankers in search engines
- Familiarization with web browsers and their functions
- Saving and managing retrieved information
- Familiarization with library services at the university, including access to domestic and international journals
- Familiarization with major scientific publishers
- Familiarization with information databases and resources
- Familiarization with citation databases
- Familiarization with major medical article databases
- Searching through medical subject headings (**MeSH**)
- Familiarization with methods for evaluating articles, journals, and authors and the relevant databases

Evaluation

Student evaluation is based on the activities and assignments specified for the course.

Course: Advanced Research Methods

Course Code: 02

Prerequisite/Co-requisite: None

Credits: 1.5

Type: 1 theoretical + 0.5 practical

General Objective

To familiarize learners with the principles, concepts, and methods of conducting research in medical sciences so that they will be able to design a research proposal and critically evaluate previous research.

Course Description and Main Topics

17 theoretical hours

- Review of the principles of research methodology
- Theoretical and conceptual frameworks
- Review of previous studies and methods of using references
- Research methods and materials, including:
 - Population
 - Sample
 - Sampling methods
 - Research setting
 - Variables and their measurement scales
 - Data-collection methods
 - Validity and reliability of research instruments
 - Presentation of findings
 - Data analysis and statistical methods
 - Ethical principles in research
- Conclusions and recommendations for application of findings and future research
- Review of different types of qualitative studies
- Preparation of a research proposal
- Critical appraisal and review of research studies

Student Evaluation

- Periodic and final examinations
 - Evaluation of students' classroom activities
 - Evaluation of assignments, seminars, and individual and group activities
 - Presentation of a research proposal
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Course: Statistics

Course Code: 03

Prerequisite/Co-requisite: None

Credits: 1.5

Type: 1 theoretical + 0.5 practical

General Objective

To familiarize learners with descriptive and analytical statistics.

Course Description

Students will become familiar with:

- Measures of central tendency
- Measures of dispersion
- Methods of drawing graphs
- Parametric and non-parametric statistical tests
- Application of these methods in statistical analysis

Main Topics

17 theoretical hours

Basic Definitions and Concepts

- Variables and variability

- Measures of central tendency
- Measures of dispersion
- Distribution measures
- Systematic error
- Accuracy and precision

Graphical Presentation

- Histograms
- Line graphs
- Scatter plots
- Stacked/combined graphs

Transformation and Outliers

- Variable transformation
- Transformation of skewed variables
- Identification and management of outliers

Estimation and Hypothesis Testing

- Statistical estimation
- Confidence intervals
- Hypothesis testing
- Comparison of means and variances between two samples
- Estimation of proportions and hypothesis testing
- Comparison of proportions between paired and independent samples

Regression

- Simple linear regression
- Estimation of regression parameters
- Hypothesis testing for regression parameters
- Comparison of two regression lines
- Inverse regression

Analysis of Variance

- One-way analysis of variance
- Post-hoc comparisons following analysis of variance

Practical Topics

Practical topics will be selected according to students' needs and, where appropriate, their thesis topics.

Practical Hours

- Drawing diagrams using **SPSS**
- Performing parametric and non-parametric statistical tests using **SPSS**

Student Evaluation

- Periodic and final examinations
 - Evaluation of classroom activities
 - Evaluation of assignments and other course activities
-

Course: Diagnostic Evaluations

Course Code: 03

Prerequisite/Co-requisite: None

Credits: 1

Type: Theoretical

General Objective

To familiarize students with the assessment of critically ill patients, advanced monitoring of vital signs, principles and fundamentals of medical imaging, clinical laboratory tests, and interpretation of laboratory data.

Course Description and Main Topics

17 theoretical hours

Assessment of the Critically Ill Patient

- Assessment and identification of critically ill patients
- Advanced monitoring of vital signs

Laboratory Skills

- Principles of laboratory specimen collection
- Clinical laboratory tests and interpretation of laboratory data

Principles and Fundamentals of Medical Imaging

- Principles and fundamentals of medical imaging
- Radiography and interpretation of findings in critically ill patients
- Other relevant medical imaging techniques and interpretation of their findings in critically ill patients

Student Evaluation

- Active and continuous participation in class
 - Periodic and final written examinations
-

Course: Nursing Law, Ethics, and Professional Relationships

Course Code: 08

Prerequisite/Co-requisite: None

Credits: 1

Type: Theoretical

General Objective

To familiarize students with ethical perspectives and methods of decision-making in ethical challenges.

Course Description

This course provides the theoretical foundations and necessary skills for ethical actions in nursing care and for establishing professional relationships based on human values.

Students become familiar with methods of protecting patients' rights and their families' rights and learn approaches for developing ethical nursing practice.

In addition to examining the nature of nursing ethics, ethical theories are reviewed and the ethical dimensions of nursing actions and professional communication are analyzed.

Students are also sensitized to ethical issues in nursing practice and gain experience and practice in ethical decision-making so that their professional ethical competencies can be strengthened.

Main Topics

17 theoretical hours

- Definition of nursing ethics and its importance
- Health and spirituality
- Human dignity and Islamic ethical values
- History of nursing ethics and human relationships
- Principles of bioethics:
 - Autonomy
 - Beneficence
 - Non-maleficence
 - Justice
- Ethical sensitivity in nursing education and clinical education
- Physician–nurse–patient communication models
- Principles of decision-making based on ethical foundations when dealing with professional nursing problems
- Ethical concepts in nursing laws and regulations
- Recognition of fundamental human rights and respect for patient/client rights
- Legal and professional responsibilities of nurses based on ethical principles
- Ethical issues in nursing care of vulnerable groups
- Ethical codes and professional practice guidelines

- Professional ethics in the health system
- Ethical and legal dilemmas in nursing, including professional misconduct and negligence
- Application of ethical principles and observance of human and professional values in providing specialized care to patients and their families
- Legal concepts, types of professional negligence, and procedures for dealing with them

Student Evaluation

- Periodic and final written examinations
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COURSE: NURSING THEORIES, MODELS, AND CONCEPTS IN CRITICAL CARE

Prerequisite/Co-requisite: None

Credits: 1.5 credits

Type: Theoretical

General Objective

To familiarize students with nursing theory and theorizing in nursing and critical care nursing, different types of theories and their application, as well as fundamental nursing concepts and their application in critical care.

Course Description

Nursing theories and concepts constitute the basis for scientific and comprehensive care in critical care units and for the generation of specialized knowledge aimed at optimizing care in these units.

Main Topics

Theoretical: 26 hours

- Concept of nursing theories and models
- Characteristics of nursing theories and models
- Nursing theories and their application in critical care, including:
 - Nightingale
 - Roy
 - Orem
 - Watson
 - Neuman
 - Rogers
 - and others
- Application of the **Synergy Model** in critical care
- Application of the **nursing process** in critical care
- The concept of biological rhythms in critical care, with emphasis on sleep
- The concept of comfort and pain and palliative care in critical care
- The concept of stress and its management in critical care
- The concept of sensory deprivation and sensory overload in critical care
- The concept of death and care of the dying patient

References

The references listed in the original document include standard nursing-theory and critical-care nursing textbooks and related sources.

Student Evaluation

- Active and continuous participation in class
 - Presentation of a summary of an article related to nursing concepts
 - Presentation of a seminar on the application of one of the nursing theories or models in critical care
 - Final written examination
-

COURSE: METHODS OF EDUCATING PATIENTS AND FAMILIES

Prerequisite/Co-requisite: None

Credits: 1 credit

Type: 0.5 theoretical + 0.5 practical

General Objective

To acquire knowledge and teaching skills and educational-planning skills in order to design educational programs, teach, and evaluate the implementation of education for improving the awareness of patients, families, students, and personnel at different levels.

Course Description

This course addresses teaching methods, the principles of teaching and learning, and the factors affecting each of them.

Main Topics

Theoretical: 9 hours

- Principles of adult learning
- The patient-education process:
- Education upon admission
- Education during hospitalization
- Education after discharge
- Planning patient health education:
- Needs assessment
- How to design an educational program
- Implementation of the program
- Principles of group education
- Therapeutic communication in patient education
- Introduction to learning and health-promotion models and theories

- Introduction to models of health-behavior change, including:
- Health Belief Model
- Behavioral Intention Model
- PRECEDE Model
- Health-promoting self-care model
- Other relevant models
- Introduction to models supporting patient self-management
- Introduction to Expectancy-Value Theory
- Monitoring and evaluation in patient health education

Practical Topics

17 hours

- Teaching self-care to patients in health-education clinics of educational and therapeutic centers
- Familiarization with checklists for evaluation and accreditation of patient education in healthcare centers
- Designing an educational program for the family of a patient hospitalized in critical care units
- Preparing applications, educational packages, pamphlets, and videos for self-care education in acute and chronic diseases
- Preparing a lesson plan for group education of patients

Student Evaluation

- Active participation in class
- Periodic and final examinations

COURSE: SPECIALIZED PHARMACOLOGY

Prerequisite/Co-requisite: None

Credits: 1 credit

Type: Theoretical

General Objective

To familiarize learners with the principles, concepts, and major pharmacological issues encountered in critically ill patients.

Course Description

The course covers general definitions and mechanisms of action of drugs, dosage forms, and the application of pharmacology in critical care nursing.

It also addresses drug actions in patients with specific underlying diseases, including:

- Renal failure
- Neurological diseases
- Adverse drug reactions
- Individual variations in responses to medications

Student Evaluation

- Active and continuous participation in class
- Periodic and final written examination

COURSE: FUNDAMENTALS OF CRITICAL CARE NURSING

Prerequisite/Co-requisite: None

Credits: 2 credits

Type: Theoretical

General Objective

To familiarize students with the concepts and definitions of critical care nursing and the general principles of nursing care for meeting the various needs of patients in critical care units.

Course Description

In this course, regardless of the specific nursing-care needs of patients with life-threatening conditions, students become familiar with general nursing care in critical care units, including basic nursing skills, skin care, eye care, oral care, emotional support for critically ill patients, and medication-related considerations.

In addition, the concept of **palliative care** and its dimensions in patients hospitalized in critical care units, as well as care at home following discharge, are presented.

General nutritional care and methods of providing nutritional support, as well as issues related to the transportation and transfer of critically ill patients, are also discussed.

Main Topics

Theoretical: 34 hours

Definition of Critical Care Nursing

- Definition and concepts of critical care nursing

Skin Care

- Common skin injuries in critically ill patients
- Maintenance and preservation of skin integrity
- General skin care and prevention of skin injuries
- Pressure ulcers and complex wounds:
- Pathophysiology
- Classification/grading
- Pressure-ulcer assessment tools
- Common and modern treatments

- Nursing care

Eye Care

- Common eye injuries in critically ill patients and their prevention
- Signs and complications
- Nursing care of the eyes in critically ill patients

Oral Care

- Common oral injuries in critically ill patients and their prevention
- Signs and complications
- Nursing care of the mouth in critically ill patients

Nutritional Care

- Assessment of patients' nutritional status
 - Malnutrition and its effects on critically ill patients
 - Nutritional support for critically ill patients
 - Methods of meeting nutritional needs in critically ill patients
-

FUNDAMENTALS OF CRITICAL CARE NURSING

Continuation

Dietary Modifications

- Dietary modifications in:
- Cardiovascular diseases
- Respiratory diseases
- Renal diseases
- Neurological diseases
- Gastrointestinal diseases
- Endocrine diseases

Palliative Care for Dying Patients

- Methods of providing comfort to patients receiving palliative care
- Decision-making concerning the method of caring for critically ill patients who are dying
- Legal issues in the care of critically ill dying patients
- Ethical issues in the care of critically ill dying patients
- Issues related to withholding or withdrawing care from critically ill dying patients
- Withdrawal or disconnection of the patient from mechanical ventilation
- **Do-Not-Resuscitate (DNR) order**

Issues Related to the Transportation of Critically Ill Patients

- Transportation of critically ill patients from the accident scene to the hospital
- Transfer of critically ill patients to other hospitals
- Intra-hospital transportation of critically ill patients
- Preparation and transportation of equipment required for patient transfer

Principles of Home Care and Hospice Care

- Care of patients receiving mechanical ventilation
- Care of patients with a tracheostomy

Principles of Rehabilitation of Critically Ill Patients

- Respiratory rehabilitation
- Limb rehabilitation

Student Evaluation

- Active and continuous participation in class
- Periodic and final written examination
- Submission of assignments and seminar presentation

COURSE: RESPIRATORY AND THORACIC CRITICAL CARE

Course Code: 13

Credits: 1.5 credits

Type: Theoretical

General Objective

To familiarize students with the principles of critical nursing care for patients with respiratory-system diseases.

Course Description

In this course, students become familiar with the principles of critical nursing care for patients with respiratory disorders, particularly patients receiving mechanical ventilation.

Main Topics

Theoretical: 26 hours

Patient Assessment

- History taking and physical examination of the critically ill patient
- Diagnostic methods, including:
- Chest radiography
- Pulmonary angiography
- Computed tomography of the pulmonary vessels
- Lung scan
- Monitoring:
- Invasive and non-invasive monitoring of the respiratory system
- Monitoring data obtained from the ventilator

Mechanical Ventilation

- Principles and concepts of mechanical ventilation
- Ventilation modes
- Adjustment of mechanical-ventilation settings based on assessment of the patient's respiratory status
- Nursing care of the mechanically ventilated patient

- Assessment of the patient's readiness for weaning from the ventilator
- Weaning from mechanical ventilation

Nursing Care in Specific Clinical Problems

- Acute respiratory distress
- **Acute Respiratory Distress Syndrome (ARDS)**
- Pulmonary hypertension
- Ventilator-associated pneumonia
- Rehabilitation in respiratory diseases

Thoracic Surgeries and Invasive Procedures and Nursing Care

- Chest tube
- Pneumonectomy
- Lobectomy
- Lung resection
- Lung biopsy
- Decortication
- Other relevant thoracic surgical procedures

RESPIRATORY AND THORACIC CRITICAL CARE

Continuation

- **Bronchoscopy**

References

The course references listed in the document include:

1. Tonia M. Hartjes (2018), *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*, 7th Edition, Elsevier, St. Louis.

2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough (2018), *Critical Care Nursing: Diagnosis and Management*, 8th Edition, Elsevier.

Additional references listed in the original document include works concerning:

- Core topics in critical care
- Critical care nursing
- Essential critical care nursing
- Respiratory support in intensive care units
- Critical care nursing textbooks

Student Evaluation

- Active and continuous participation in class
 - Periodic and final written examination
 - Submission of assignments and seminar presentation
-

COURSE 14: CLINICAL PRACTICUM IN RESPIRATORY AND THORACIC CRITICAL CARE

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Respiratory and Thoracic Critical Care, Diagnostic Evaluations

Credits: 1

Type: Clinical Practicum

General Objective

To become familiar with the principles of specialized nursing care for patients with respiratory diseases and to acquire practical skills in this area.

Course Description

In this course, students become familiar with the principles of specialized nursing care for patients with respiratory diseases, particularly patients receiving mechanical ventilation.

Course Topics

Practical: 51 hours

Provision and application of specialized respiratory care to patients with acute respiratory disorders, particularly patients with **Acute Respiratory Distress Syndrome (ARDS)**, patients receiving mechanical ventilation, and patients undergoing thoracic surgery, based on a comprehensive nursing-care model, with emphasis on critical thinking and acquisition of skills in the following areas:

Diagnostic and Monitoring Skills

- Performing and interpreting **chest radiography**
- Performing and monitoring **pulse oximetry**
- Performing and interpreting **capnography**
- Obtaining arterial blood samples through the radial and brachial arteries and through a **pulmonary artery catheter**
- Monitoring and reporting arterial blood gases
- Performing various physical-examination techniques of the chest
- Correct use of endotracheal tubes, nebulizers, and various oxygen-delivery devices

Airway Management

- Insertion of an **oropharyngeal airway**
- Insertion of a **nasopharyngeal airway**
- Insertion of an **endotracheal tube**
- Cuff inflation and pressure adjustment of an endotracheal tube
- Monitoring cuff pressure of an endotracheal or tracheostomy tube
- **Extubation**
- Suctioning an endotracheal tube using the **open** method
- Suctioning an endotracheal tube using the **closed** method

Mechanical Ventilation

- Preparation of the mechanical ventilator and connecting the patient to the device
 - Mechanical ventilation using an **ambu bag**
 - Non-invasive mechanical ventilation using an **NIV mask**
 - Monitoring ventilator data
 - Selection of ventilatory modes and adjustment of mechanical-ventilation settings based on the patient's respiratory condition
 - Assessment of the patient's readiness for separation from the ventilator
 - Weaning the patient from mechanical ventilation
-

COURSE 14 — CONTINUATION

Additional Clinical Skills

- Monitoring patients during insertion and removal of invasive devices, including:
 - Chest tubes
 - Arterial catheters
 - Central venous catheters
- Monitoring the patient with a **CVP** catheter
- Monitoring patients with a **chest tube**
- Removal of a chest tube

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing, Diagnosis and Management*. 8th Ed. Elsevier.

Additional References

1. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education.

2. Criner, Gerard J.; Barnette, Rodger E.; D'Alonzo, Gilbert E. (2010). *Critical Care Study Guide: Text and Review*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
3. Alspach, Joanne. *Core Curriculum for Critical Care Nursing*. Latest Edition.
4. Morton Fontaine. (2018). *Essentials of Critical Care Nursing*. Lippincott.
5. Seyed Ahmad Reza Sadeghi, Mohsen Nik? (1397), **Respiratory Care in the Specialized Care Section**, Publications of Isfahan University of Medical Sciences.
6. Mohammadreza Askari, Mohsen Soleimani (1397), **Reference Book for Specialized Nursing Care in ICU and CCU**, Bashari Publications.
7. Malahat Nikoufar, Hassan Shirazi (1392), **Specialized Care in ICU**, Noor Danesh Publications.

Student Evaluation

- Written entrance examination for the relevant clinical unit
- **Logbook**
- Periodic examinations using **Mini-CEX** and **DOPS**
- Submission of a portfolio

Note 1: The number of hours of attendance in the clinical-practicum sessions is determined according to the educational workload and the working shifts of the ward and may be conducted in five shifts (morning, evening, and night shifts).

Note 2: Clinical practicum may be conducted on days when the university is closed, subject to the approval of the educational managers of the school.

Note 3: All educational capacities and facilities available in the university may be used for conducting this course.

COURSE 15: CARDIOVASCULAR CRITICAL CARE

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Specialized Nursing Care, Diagnostic Evaluations

Credits: 1.5

Type: Theoretical

General Objective

To become familiar with the principles of specialized nursing care for patients with cardiovascular diseases.

Course Description

In this course, students become familiar with the principles of specialized nursing care for patients with cardiovascular diseases and with the equipment used in **CCU** and **OHICU** units.

Course Topics

Theoretical: 26 hours

Patient Assessment

- Assessment and physical examination of patients requiring specialized care
- Diagnostic methods, including:
 - Electrocardiography
 - Cardiac monitoring
 - **12-lead ECG**
 - **Holter monitoring**
 - Coronary angiography
- Familiarization with coronary angiography, including cardiac catheterization, interpretation of coronary angiographic findings, and interpretation of cardiac ultrasound findings
- Monitoring:
 - Non-invasive and invasive blood-pressure monitoring
 - Central venous pressure (**CVP**)
 - Pulmonary artery pressure

- **PCWP**
- **PAP**
- **CVP**

Specialized Nursing Care for Cardiovascular Problems

- Coronary artery diseases:
- Acute coronary syndrome
- Acute myocardial infarction
- Types of myocardial infarction
- Angina
- Cardiovascular arrhythmias
- Valvular heart diseases
- Aortic aneurysm
- Diseases of the heart valves and cardiac surgeries
- Endocarditis
- Myocarditis
- Hypertensive crisis

Heart-Rhythm Disorders

- Identification of abnormal heart rhythms
- **Electrophysiological study**
- Familiarization with cardiac drugs
- Familiarization with intra-aortic balloon pump
- Familiarization with cardiac pacemakers
- Familiarization with **cardioversion and defibrillation**
- Familiarization with different types of **mechanical circulatory support** in cardiac patients

Cardiac and Thoracic Surgery

- Types of open-heart surgery and thoracic surgery
- Complications associated with cardiac and thoracic surgery
- Nursing care following open-heart and thoracic surgery
- Nutrition in cardiovascular diseases

COURSE 15: CARDIOVASCULAR CRITICAL CARE

Continuation

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.

Additional References

1. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education. Third Edition, Section 2, pp. 231–263.
2. Woods, Susan L.; Froelicher, Erica; Motzer, Suzanne Underhill. (2010). *Cardiac Nursing*. Lippincott, Section 1, pp. 18–28.
3. Alspach, Joanne. *Core Curriculum for Critical Care Nursing*. Latest Edition.
4. Criner, Gerard J.; Barnette, Rodger E.; D'Alonzo, Gilbert E. (2010). *Critical Care Study Guide Text and Review*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London. Part 2, pp. 320–341.
5. Morton Fontaine. (2018). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins. Part Three, pp. 143–179.
6. Mir Mohammad Sadeghi, Mohsen Nik? **Clinical Points in Cardiac Surgery and ICU**. Timed Publications, 1394.
7. Masoumeh Zakeri Moghaddam, Mansoureh Ali Asghar? (1391), **Specialized Nursing Care in CCU, ICU and Dialysis**, Rafee Publications.

Student Evaluation

- Active and continuous participation in class
- Periodic and final written examination
- Submission of assignments and seminar presentation

COURSE 16: CLINICAL PRACTICUM IN CARDIOVASCULAR CRITICAL CARE

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Cardiovascular Critical Care, Diagnostic Evaluations

Credits: 1

Type: Clinical Practicum

General Objective

To become familiar with the principles of specialized nursing care for patients with cardiovascular diseases and to acquire practical skills in this area.

Course Description

In this course, students become familiar with the principles of specialized nursing care for patients with cardiovascular diseases and with the equipment used in **CCU** and **OHICU**.

Course Topics

Practical: 51 hours

Provision and application of specialized cardiovascular care to patients with cardiovascular disorders, particularly patients with acute coronary syndrome, acute myocardial infarction, and other cardiovascular diseases, based on a comprehensive nursing-care model and with emphasis on monitoring before and after cardiac surgery and acquisition of practical skills in the following areas:

Diagnostic Procedures

- Performing, monitoring, and interpreting a **12-lead ECG**

- Assisting with insertion of a **pulmonary artery catheter**, monitoring it, and interpreting its findings
- Assisting with insertion of a **central venous catheter**, monitoring it, and interpreting its findings
- Assisting with insertion of a **radial artery catheter**, monitoring it, and interpreting its findings
- Measuring cardiac output using the **thermodilution method**, **PICCO**, and **Vigileo**
- Assisting the physician during invasive procedures such as:
 - Chest-tube insertion
 - Pulmonary artery catheter insertion
 - Arterial catheter insertion
 - Central venous catheter insertion, where facilities are available

Drug Calculations

- Thrombolytic drugs
- Antiarrhythmic drugs
- Inotropes

Working with Equipment

- Working with cardiac and respiratory monitoring systems, including:
 - **NIBP**
 - **SpO₂**
 - **CO₂**
 - **TEMP**
 - **RESP**
 - **ECG**
- Principles of working with cardiac pacemakers:
 - Internal
 - External
- Principles of working with defibrillators and **DC shock**
 - Defibrillation
 - Cardioversion
- Principles of working with infusion pumps and syringe pumps

- Principles of working with a **DVT pump**
-

COURSE 16 — CONTINUATION

Additional Skills

- Principles of working with an **EECP pump**
(*Enhanced External Counterpulsation*)
- Principles of working with an intra-aortic balloon pump
- Principles of working with a cardiopulmonary bypass system
- Principles of working with a **Holter** cardiac and blood-pressure monitoring system

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.

Additional References

1. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education. Third Edition, Section 2, pp. 231–263.
2. Woods, Susan L.; Froelicher, Erica; Motzer, Suzanne Underhill. (2010). *Cardiac Nursing*. Lippincott, Section 1, pp. 18–28.
3. Alspach, Joanne. *Core Curriculum for Critical Care Nursing*. Latest Edition.
4. Criner, Gerard J.; Barnette, Rodger E.; D'Alonzo, Gilbert E. (2010). *Critical Care Study Guide Text and Review*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London. Part 2, pp. 320–341.
5. Morton Fontaine. (2018). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins. Part Three, pp. 143–179.
6. Mir Mohammad Sadeghi, Mohsen Nik? **Clinical Points in Cardiac Surgery and ICU**. Timed Publications, 1394.

7. Masoumeh Zakeri Moghaddam, Mansoureh Ali Asghar? (1391), **Specialized Nursing Care in CCU, ICU and Dialysis**, Rafee Publications.

Student Evaluation

- Written entrance examination for the relevant clinical unit
- **Logbook**
- Periodic examinations using **Mini-CEX** and **DOPS**
- Submission of a portfolio

The same clinical-practicum notes regarding clinical hours, shifts, closure days, and use of available educational facilities apply to this course.

COURSE 17: NEUROLOGICAL AND PSYCHIATRIC CRITICAL CARE

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Specialized Nursing Care, Diagnostic Evaluations

Credits: 1.5

Type: Theoretical

General Objective

To become familiar with the principles of specialized nursing care for patients with neurological disorders and psychiatric problems in critical care units.

Course Description

In this course, students become familiar with the principles of specialized nursing care for patients with neurological disorders and psychiatric problems.

Course Topics

Theoretical: 26 hours

Patient Assessment

- Assessment and recognition of the patient
- Physical examination, including:
 - Level of consciousness
 - Sensory-motor systems
 - **Glasgow Coma Scale**
- Assessment of cranial nerves
- Assessment of brainstem function
- Assessment of changes in neurological function
- Neurological criteria for determining brain death

Diagnostic Methods

- Diagnostic imaging, including:
 - **CT scan**
 - **MRI**
 - **MRA**
 - **Cerebral angiography**
 - **Electroencephalography**
- Other relevant diagnostic methods
- Review and interpretation of neurological findings

Monitoring

- Monitoring intracranial pressure (**ICP**)
- Monitoring and assessment of **cerebral perfusion**

Specialized Nursing Care in Neurological Problems

- Increased intracranial pressure
- Brain injuries
- Cerebral hematomas:
 - Epidural hematoma
 - Subdural hematoma
 - Intracerebral hematoma (**ICH**)

- Brain tumors
- Cerebral edema
- Spinal cord injuries
- Seizures and convulsions
- Central nervous system infections, including:
- Meningitis
- Encephalitis
- Other relevant infections
- Neuromuscular disorders, including:
- **Guillain–Barré syndrome**
- **Myasthenia gravis**
- Stroke
- Protocol for determining brain death

Neurosurgical Care

- Types of invasive procedures and neurosurgeries

COURSE 17: NEUROLOGICAL AND PSYCHIATRIC CRITICAL CARE

Continuation

Complications Following Neurosurgical Procedures

- Complications resulting from neurosurgical procedures
- Care of patients with brain drains
- Nursing care of patients after neurosurgical procedures

Specialized Psychiatric Problems

- Identification of psychiatric disorders
- Delirium

- Measures related to suicide prevention and protection of the patient and family
- Sensory stimulation
- Restriction of sensory stimuli
- **Delirium**

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.

Additional References

1. Anish Bhardwaj, Marek A. Mirski. (2010). *Handbook of Neurocritical Care*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
2. Barker. *Neuroscience Nursing: A Spectrum of Care*. Mosby.
3. Joanne V. Hickey. (2014). *The Clinical Practice of Neurological & Neurosurgical Nursing*. Amazon.
4. Sue Woodward–Mesticky. (2011). *Neuroscience Nursing: Evidence-Based Practice*. Wiley-Blackwell.
5. Alspach, Joanne. (2010). *Core Curriculum for Critical Care Nursing*. Latest Edition.
6. Black, J. H.; Hawak, J. (2014). *Medical-Surgical Nursing: Clinical Management for Positive Outcome*. Elsevier Saunders, Latest Edition.
7. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education.
8. Carlson, Karen. *AACN Critical Care Nursing*. Saunders, Elsevier.
9. Criner, Gerard J.; Barnette, Rodger E.; D'Alonzo, Gilbert E. (2010). *Critical Care Study Guide Text and Review*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
10. Morton, Fontaine. (2018). *Essential of Critical Care Nursing*. Lippincott Williams & Wilkins.
11. Rabinovici, Reuven; Frankel, Heidi L.; Kirton, Orlando C. (2010). *Trauma, Critical Care and Surgical Emergencies: A Case and Evidence-Based Textbook*. Informa Healthcare.
12. Townsend, Mary. *Nursing Diagnosis in Psychiatric and Psychotropic Medication*.

Student Evaluation

- Active and continuous participation in class
- Periodic and final written examination
- Submission of assignments and seminar presentation
-

COURSE 18: CLINICAL PRACTICUM IN NEUROLOGICAL AND PSYCHIATRIC CRITICAL CARE

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Neurological and Psychiatric Critical Care, Diagnostic Evaluations, Pharmacology

Credits: 1 credit

Type: Clinical Practicum — 51 hours

General Objective

To become familiar with the principles of specialized nursing care for patients with neurological disorders and psychiatric disorders in critical care units.

Course Description

In this course, students become familiar with the principles of specialized nursing care for patients with neurological disorders and psychiatric disorders.

Clinical Practicum Topics

51 hours

Provision and application of specialized neurological and psychiatric critical care to patients with acute neurological disorders, including:

- Patients with decreased level of consciousness
- Brain injuries
- Spinal cord injuries
- Cerebral hematomas
- Brain tumors
- Increased intracranial pressure

- Neuromuscular disorders
- Brain death
- Epilepsy and seizures
- Neurosurgical patients

and patients with psychiatric disorders, including:

- Psychiatric emergencies
- Hallucinations and delusions
- Delirium

Care is provided in critical care units based on a comprehensive care model, with emphasis on holistic care and acquisition of the following skills:

Clinical Skills

- Use of common instruments and assessment tools in critical care units, including:
- Sedation assessment tools
- Pain assessment and control tools
- Tools for assessing level of consciousness
- **FOUR Score**
- Monitoring the level of consciousness and sensory-motor functions
- Monitoring intracranial pressure
- Performing a complete neurological examination, including:
 - Eye examination
 - Pupil examination
 - Sensory and motor assessment
 - Level of consciousness
 - Mental status
 - Speech assessment
- Familiarization with diagnostic procedures, including:
 - Lumbar puncture
 - CT scan
 - MRI
 - Cerebral angiography

- Transcranial Doppler ultrasound
 - Electroencephalography (**EEG**)
 - Electromyography (**EMG**)
 - Providing specialized care to patients with medical and neurosurgical emergencies
-

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Anish Bhardwaj, Marek A. Mirski. (2010). *Handbook of Neurocritical Care*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
4. Barker. (Last edition). *Neuroscience Nursing: A Spectrum of Care*. Mosby.
5. Joanne V. Hickey. (2014). *The Clinical Practice of Neurological & Neurosurgical Nursing*. Amazon.
6. Sue Woodward-Mesticky. (2011). *Neuroscience Nursing: Evidence-Based Practice*. Wiley-Blackwell.
7. Alspach, Joanne. (2010). *Core Curriculum for Critical Care Nursing*. Latest Edition.
8. Black, J.; Hawak, J. (2014). *Medical-Surgical Nursing: Clinical Management for Positive Outcomes*. Elsevier Saunders, Latest Edition.
9. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education.
10. Carlson, Karen. (2009). *AACN Critical Care Nursing*. Saunders, Elsevier.
11. Criner, Gerard J.; Barnette, Rodger E.; D'Alonzo, Gilbert E. (2010). *Critical Care Study Guide: Text and Review*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
12. Morton, Fontaine. (2018). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins.
13. Townsend, Mary. (Last edition). *Nursing Diagnosis in Psychiatric and Psychotropic Medication*.

Student Evaluation

- Written entrance examination for the clinical unit
- **Logbook**
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

1. Attendance in the clinical-practicum settings will be in accordance with the working shifts, from **Saturday through Thursday**.
 2. Clinical practicum may be conducted on holidays depending on available facilities and at the discretion of the faculty's educational managers.
 3. All available educational and clinical capacities should be utilized for teaching this course.
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COURSE 19: GASTROINTESTINAL AND ABDOMINAL SURGERY CRITICAL CARE

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Diagnostic Evaluations, Pharmacology

Credits: 1 credit

Type: Theoretical

General Objective

To become familiar with the principles of specialized nursing care for patients with gastrointestinal diseases and patients undergoing abdominal and pelvic surgery.

Course Description

In this course, students become familiar with the principles and concepts of specialized nursing care for the gastrointestinal system and acquire the necessary knowledge and skills for providing care to patients with acute and critical gastrointestinal disorders.

Course Topics

Theoretical: 17 hours

Patient Assessment

- Patient assessment and recognition
- Physical examination
- Diagnostic methods
- Monitoring

Specialized Nursing Care for Specific Clinical Problems

- Nutritional disorders in critically ill patients
- Liver failure and hepatic encephalopathy
- Abdominal compartment syndrome
- Abdominal trauma

Abdominal and Pelvic Surgery

- Types of interventional procedures and surgeries involving the abdomen and pelvis
- Complications associated with abdominal and pelvic procedures and surgeries
- Care of drains and monitoring of intra-abdominal pressure
- Nursing care of patients undergoing abdominal and pelvic surgery

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Alspach, Joanne. (2010). *Core Curriculum for Critical Care Nursing*. Latest Edition.
4. Black, J.; Hawak, J. (2014). *Medical-Surgical Nursing: Clinical Management for Positive Outcome*. Elsevier Saunders, Latest Edition.

Student Evaluation

- Active and continuous participation in class
 - Periodic and final written examination
 - Submission of assignments and seminar presentation
-

COURSE 20: RENAL AND URINARY TRACT CRITICAL CARE AND DIALYSIS

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Diagnostic Evaluations, Pharmacology

Credits: 1 credit

Type: Theoretical

General Objective

To become familiar with the principles of specialized nursing care for patients with **acute and chronic renal failure**, renal trauma, surgery of the kidneys, bladder and urinary tract, and renal replacement therapies, including **hemodialysis and peritoneal dialysis**.

Course Description

In this course, students become familiar with acute and chronic renal failure, renal trauma, surgery of the kidneys, bladder and urinary tract, and nursing care of patients receiving hemodialysis and peritoneal dialysis.

Course Topics

Theoretical: 17 hours

Patient Assessment

- Patient assessment and recognition
- Physical examination
- Diagnostic methods

Specialized Nursing Care for Specific Clinical Problems

Renal Failure

- Acute renal failure:
- Pre-renal acute renal failure
- Intrarenal acute renal failure
- Post-renal acute renal failure
- Chronic renal failure

Renal and Urinary Tract Trauma

- Trauma to the kidneys, bladder, and urinary tract

Renal and Urinary Tract Surgery

- Assessment, diagnosis, and nursing care of patients undergoing kidney and urinary-tract surgery

Renal Replacement Therapies

Hemodialysis

- Principles of hemodialysis
- Types of dialyzers and methods of selecting an appropriate dialyzer
- Hemodialysis solutions
- **R/O (Reverse Osmosis)** systems
- Types of vascular access and care of vascular access
- Anticoagulants and methods of their use during hemodialysis
- Nursing care during dialysis
- Nutrition in patients receiving hemodialysis
- Laboratory tests and interpretation of laboratory values in patients receiving hemodialysis

Peritoneal Dialysis

- Types of peritoneal dialysis

- Procedure for performing peritoneal dialysis
- Nutrition during peritoneal dialysis
- Management of complications of peritoneal dialysis

Continuous Renal Replacement Therapy

- **Continuous Renal Replacement Therapy (CRRT)**
-

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1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Brenner, B.M.; Rector. (2012). *The Kidney*. 8th Edition. Elsevier Saunders.
4. Hashemi, M.; Shahgholian, N. (1392). *Renal Failure and Replacement Therapies*. Heydari Publications.
5. Atabek, S. et al. (1388). *The Nurse and Dialysis*. Second Edition. Soha Publications.
6. Azmandian, J. et al. (1388). *Dialysis*. Second Edition. Soha Publications.
7. Zakeri Moghaddam, M.; Ali-Asghar Pour, M. (1391). *Specialized Nursing Care in CCU, ICU and Dialysis Units*. Tehran: Andisheh Rafee Publications.

Student Evaluation

- Active and continuous participation in class
 - Periodic and final written examination
 - Submission of assignments and seminar presentation
-

COURSE 21: CLINICAL PRACTICUM IN RENAL AND URINARY TRACT CRITICAL CARE AND DIALYSIS

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Renal and Urinary Tract Critical Care and Dialysis, Diagnostic Evaluations, Pharmacology

Credits: 0.5 credit

Type: Clinical Practicum

General Objective

To become familiar with the principles of specialized nursing care in **hemodialysis and peritoneal dialysis**.

Course Description

In this course, students become familiar with the principles of nursing care for patients undergoing hemodialysis and peritoneal dialysis.

Clinical Practicum Topics

- Principles and operation of different types of hemodialysis machines
- Setting up and priming the hemodialysis machine
- Causes of alarms in hemodialysis machines and methods of resolving them
- Familiarization with different types of vascular access:
 - Fistula
 - Graft
 - Permcath
- Familiarization with different types of dialyzers
- Familiarization with different types of dialysis solutions
- Use of **sodium profiles** and **ultrafiltration profiles**
- Familiarization with the **Reverse Osmosis (RO)** system
- Management of complications of dialysis
- Patient education concerning:
 - Fluid restriction
 - Diet

- Care of vascular access
 - Control and management of complications of renal failure and hemodialysis
 - Education of the patient's family regarding home care
 - Teaching the patient, the stages and procedure of peritoneal dialysis
 - Calculation of **dialysis adequacy**
 - Interpretation of laboratory tests and educating patients about appropriate dietary and medication regimens based on laboratory results
-

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Brenner, B.M.; Rector. (2012). *The Kidney*. 8th Edition. Elsevier Saunders.
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6. Azmandian, J. et al. (1388). *Dialysis*. Second Edition. Soha Publications.
7. Zakeri Moghaddam, M.; Ali-Asghar Pour, M. (1391). *Specialized Nursing Care in CCU, ICU and Dialysis Units*. Tehran: Andisheh Rafee Publications.

Student Evaluation

- Written entrance examination for the clinical unit
- **Logbook**
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

1. Attendance in clinical-practicum settings will be according to the working shifts, from Saturday through Thursday.
 2. Clinical practicum may be conducted on holidays depending on available facilities and the opinion of the faculty's educational managers.
 3. All available educational and clinical capacities should be utilized for teaching this course.
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COURSE 22: ENDOCRINE CRITICAL CARE

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Diagnostic Evaluations, Pharmacology

Credits: 0.5 credit

Type: Theoretical

General Objective

To become familiar with the principles of specialized nursing care for patients with disorders of the endocrine system.

Course Description

In this course, students become familiar with the principles of specialized nursing care for patients with endocrine disorders.

Course Topics

Theoretical: 9 hours

Patient Assessment

- Patient assessment and recognition
- Physical examination

- Diagnostic methods
- Monitoring

Specialized Nursing Care for Specific Clinical Problems

- **Diabetes insipidus**
- **Syndrome of inappropriate antidiuretic hormone secretion (SIADH)**
- Thyroid diseases:
 - Hyperthyroidism
 - Hypothyroidism
 - Myxedema coma
- Parathyroid disorders:
 - Hypoparathyroidism
 - Hyperparathyroidism
- Adrenal gland diseases:
 - Adrenal insufficiency
 - Adrenal hyperfunction
- Diabetes mellitus and its acute complications:
 - **Diabetic ketoacidosis (DKA)**
 - **Hyperosmolar hyperglycemic state/coma**
 - **Hypoglycemia**
 - Prevention of complications of diabetes
 - Management of diabetes
 - Dietary management of patients with diabetes
- **Stress-induced hyperglycemia**

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education.
4. Carlson, Karen. (Latest edition). *AACN Critical Care Nursing*. Saunders, Elsevier.

5. Morton, Fontaine. (2018). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins.

Student Evaluation

- Active and continuous participation in class
- Periodic and final written examination
- Submission of assignments and seminar presentation

COURSE 23: CRITICAL CARE FOR MULTI-ORGAN DISORDERS AND SPECIAL PATIENT POPULATIONS

Course Code: 23

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Diagnostic Evaluations, Pharmacology

Credits: 2 credits

Type: Theoretical

General Objective

To familiarize students with the assessment and care of patients with:

- Penetrating and non-penetrating trauma
- Burns
- Shock
- Multiple Organ Dysfunction Syndrome
- Drug poisoning and overdose
- Healthcare-associated infections, including:
 - Urinary tract infections
 - Surgical-site infections
 - Bacteremia
- Infections of open wounds, ulcers, burns, and pressure ulcers
- Hematological emergencies
- Oncological emergencies
- Critical care of pregnant women

- Patients undergoing organ transplantation

Course Description

In this course, students become familiar with specialized nursing care for patients undergoing organ transplantation and patients in critical conditions, including penetrating and non-penetrating trauma, burns, shock, multiple-organ dysfunction syndrome, poisoning and drug overdose, healthcare-associated infections, hematological and oncological emergencies, pregnancy, and high-risk labor and delivery.

Students should be able to assess patients in emergency situations and make appropriate decisions when providing immediate and critical care.

Main Topics

Theoretical: 34 hours

Patient Assessment

- Assessment and recognition of the patient
- Physical examination
- Diagnostic methods
- Monitoring

Trauma

- Penetrating and non-penetrating trauma
- Primary and secondary care of trauma patients

Shock

- Hypovolemic shock
- Cardiogenic shock
- Anaphylactic shock
- Neurogenic shock
- Septic shock

Multiple Organ Dysfunction Syndrome

- **Systemic Inflammatory Response Syndrome (SIRS)**
- Differentiation among:
 - Multiple Organ Dysfunction Syndrome (**MODS**)
 - Systemic Inflammatory Response Syndrome (**SIRS**)
 - Sepsis
 - Severe sepsis
 - Septic shock
 - Multiple Organ Failure

Healthcare-Associated Infections

- Healthcare-associated infections (**HAIs**)

Poisoning and Drug Overdose

- Poisoning
- Drug overdose

Hematological Emergencies

- Disseminated Intravascular Coagulation (**DIC**)
- Thrombocytopenia
- Heparin-induced thrombocytopenia
- Sick-cell anemia in critically ill patients

Oncological Emergencies

- Hypercalcemia of malignancy
 - Tumor lysis syndrome
 - Syndrome of inappropriate antidiuretic hormone secretion (**SIADH**)
 - Spinal cord compression
 - Superior vena cava syndrome
 - Cardiac tamponade
-

COURSE 23 — CONTINUATION

High-Risk Pregnancy and Obstetric Emergencies

- Management of high-risk pregnancy
- Antepartum hemorrhage
- Postpartum hemorrhage
- Abnormal labor
- Venous thromboembolism during pregnancy
- Eclampsia
- Preeclampsia
- Multiple pregnancy

Burns

- Mechanisms and types of burns
- Fluid therapy in different types of burns
- Infections in burn patients
- Pain and psychological problems associated with burns

Organ Transplantation

- Solid-organ and soft-tissue transplantation
- Transplantation immunology
- Indications and contraindications for transplantation
- Criteria for donor and recipient selection
- Stages of organ transplantation
- Legal, ethical, and religious issues in transplantation
- Postoperative care following transplantation
- Types of transplant rejection and related interventions
- Medications used in transplantation, including:
 - Glucocorticoids
 - Mycophenolate mofetil
 - Polyclonal antibodies
 - Monoclonal antibodies, including **OKT3**
 - Azathioprine

- Cyclosporine
- Sirolimus/Rapamycin
- Education of transplant patients
- Opportunistic infections in transplant patients

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1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education. Chapter 11, pp. 293–310.
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5. Gabriel M. Danovitch. *Handbook of Transplantation*. Wolters Kluwer, Lippincott Williams & Wilkins.
6. Carlson, Karen. (Latest edition). *AACN Critical Care Nursing*. Saunders, Elsevier. Chapter 40–41: Shock, pp. 1067–1128; Chapter 42: Trauma, pp. 1134–1144; Chapter 43: Multiple Organ Dysfunction Syndrome, pp. 1189–1205; Chapter 44: Burns, pp. 1212–1257.
7. Morton, Fontaine. (2013). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins. Part Eleven, Chapter 33: Shock and Multiple Organ Dysfunction Syndrome, pp. 457–469; Chapter 34: Trauma, pp. 470–486.
8. Hashemi, Maryam; Shahgholian, Nahid; Kashani, Fahimeh. (1393). **Transplantation**. Tehran: Heydari Publications.

Student Evaluation

- Active and continuous participation in class
 - Periodic and final written examination
 - Assignment and seminar presentation
-

COURSE 24: CLINICAL PRACTICUM IN MULTI-ORGAN DISORDERS

Course Code: 24

Prerequisite/Co-requisite: Principles of Critical Nursing Care, Critical Care for Multi-Organ Disorders, Diagnostic Evaluations, Pharmacology

Credits: 1 credit

Type: Clinical Practicum

General Objective

To familiarize students with the assessment and care of patients with:

- Multiple-organ disorders
- Multiple trauma
- Patients undergoing transplantation
- Burn injuries

Course Description

In this course, students become familiar with the specialized care of patients with multiple-organ disorders, multiple trauma, transplant patients, and burn patients and become capable of assessing patients in emergency situations and making appropriate decisions during immediate and critical care.

Clinical Practicum Topics

51 hours

Provision and application of comprehensive critical care to patients with burns and transplant recipients hospitalized in intensive care units, based on a nursing-care model, with emphasis on holistic care and learning and skill acquisition in the following areas:

Burn Care

- Determination of the **percentage and depth of burn wounds** in burn patients presenting to the emergency department
- Calculation of the required intravenous fluid volume for burn patients at different stages
- Care during and after intravenous fluid therapy in burn patients
- Comparison of changes in **blood volume and electrolytes** during the emergency and acute phases
- Performing the necessary interventions for pain control
- Providing psychological support to the patient and family
- Nutritional care
- Respiratory care
- Patient education
- Assessment, diagnosis, and nursing care of patients with **inhalation injuries**
- Assessment, diagnosis, and nursing care of patients with **electrical burns**
- Assessment, diagnosis, and nursing care before and after **skin-graft placement**

Transplantation

The student should follow at least **one complete transplantation case (donor–recipient)** in order to become familiar with the following:

- Visiting the transplant unit and observing at least one transplant case
- Observing the type of transplant surgery performed on the recipient
- Observing the organ-donation surgery in the donor
- Becoming familiar with specialized transplantation equipment in the operating room
- Becoming familiar with post-anesthesia care in the **PACU** for the transplant recipient and donor

COURSE 24 — CONTINUATION

Transplant Unit Skills

The student's presence in the transplant unit is intended to develop the following skills:

- Familiarity with post-transplant care, particularly during the first days following transplantation
- Familiarity with medications used by transplant patients and measurement of their blood levels
- Familiarity with common post-transplant complications, particularly infections, including:
 - Surgical-site infections
 - Urinary infections
 - Other common infections
- Methods of preventing these complications

Shock Care

- Providing care to patients suffering from shock

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education. Chapter 11, pp. 293–310.
4. Rabinovici, Reuven; Frankel, Heidi L.; Kirton, Orlando C. (2010). *Trauma, Critical Care and Surgical Emergencies: A Case and Evidence-Based Textbook*. Informa Healthcare.
5. Gabriel M. Danovitch. *Handbook of Transplantation*. Wolters Kluwer, Lippincott Williams & Wilkins.
6. Carlson, Karen. (Latest edition). *AACN Critical Care Nursing*. Saunders, Elsevier. Chapter 40–41: Shock, pp. 1067–1128; Chapter 42: Trauma, pp. 1134–1144; Chapter 43: Multiple Organ Dysfunction Syndrome, pp. 1189–1205; Chapter 44: Burns, pp. 1212–1257.
7. Morton, Fontaine. (2013). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins. Part Eleven, Chapter 33: Shock and Multiple Organ Dysfunction Syndrome, pp. 457–469; Chapter 34: Trauma, pp. 470–486.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Portfolio submission

Notes

1. Clinical practicum hours are conducted according to the working shifts and on a rotating basis throughout the week.
 2. Clinical practicum may be conducted during holidays depending on available facilities and the decision of the educational managers.
 3. All available educational and clinical capacities should be utilized for teaching this course.
-

COURSE: FINAL CLINICAL INTERNSHIP / CLERKSHIP

Number of Credits: 6 credits

Type: Clinical Internship

Prerequisite/Co-requisite: All courses

General Objective

To acquire an adequate level of skill to independently provide critical care and to teach these skills to students and personnel.

It is expected that after completion of this clinical internship, the student will be able to independently provide care to patients hospitalized in:

- Respiratory ICU
- Neurological ICU
- Cardiac Surgery ICU
- Emergency Department
- CCU

During previous semesters, students have become familiar with the scientific and practical concepts and methods presented in the Master's degree program and, by completing clinical-practicum hours in specialized units, have acquired specialized nursing-care and practical skills for each unit.

In this course, students are expected to perform independent clinical work and participate in teaching personnel and other students.

Distribution of Clinical Internship Credits

The clinical internship will be distributed as follows:

- **Respiratory ICU:** 2 credits
- **Neurological ICU:** 1 credit
- **Cardiac Surgery ICU:** 1 credit
- **Emergency Department:** 1 credit
- **CCU:** 1 credit

Total: 6 credits

Course Description

In this course, students act as assistant instructors for other students in the various clinical units, including respiratory ICU, neurological ICU, cardiac surgery ICU, emergency department, and CCU.

Clinical Internship Topics

408 hours

The student should be able to perform a comprehensive patient assessment and independently provide nursing care in each unit and teach the following skills.

EXPECTED SKILLS — RESPIRATORY ICU

- Interpretation and reporting of chest radiographs
 - Correct performance of pulse oximetry
 - Correct performance and reporting of capnography
 - Obtaining arterial blood samples through an arterial catheter
 - Obtaining arterial blood samples through direct arterial puncture
 - Monitoring and reporting arterial blood gases
 - Performing various chest physiotherapy techniques
 - Correct use of inhalers, nebulizers, and various oxygen-therapy devices
 - Insertion of an **oropharyngeal airway**
 - Insertion of a **nasopharyngeal airway**
 - Endotracheal intubation
 - Securing and fixing the endotracheal tube
 - Monitoring cuff pressure of an endotracheal or tracheostomy tube
 - **Extubation**
 - Open and closed endotracheal suctioning
 - Tracheostomy suctioning
-

FINAL CLINICAL INTERNSHIP — CONTINUATION

Respiratory ICU

- Preparing the mechanical ventilator
- Connecting the patient to the mechanical ventilator
- Mechanical ventilation using an **ambu bag**
- Non-invasive mechanical ventilation using an **NIV mask**
- Monitoring ventilator data
- Assessing the patient's readiness for separation from the ventilator
- Weaning the patient from mechanical ventilation

- Respiratory rehabilitation
- Routine care during insertion and removal of invasive devices, including:
- Chest tube
- Arterial catheter (arterial line)
- Central venous catheter
- Care of the patient with a chest tube
- **NGT** insertion
- Basic and advanced **cardiopulmonary resuscitation**
- Obtaining and interpreting arterial blood samples
- Appropriate interventions for bleeding

Emergency Department

- Patient triage
 - Primary and advanced nursing interventions in trauma patients
-

CCU

Diagnostic and Clinical Skills

- Obtaining a **12-lead electrocardiogram**

Medication Calculations

- Thrombolytics
- Antiarrhythmics
- Inotropes

Equipment

- Working with cardiac monitoring systems and modules, including:
- **NIBP**
- **SpO₂**
- **EtCO₂**

- **TEMP**
 - **RESP**
 - **ECG**
 - Principles of working with a cardiac pacemaker
 - Principles of working with a defibrillator and **DC shock**
 - Principles of working with infusion pumps and syringe pumps
-

CARDIAC SURGERY ICU

Clinical and Monitoring Skills

- Assisting with insertion of an **arterial catheter**, monitoring it, and interpreting the data
- Assisting with insertion of a **central venous catheter**, monitoring it, and interpreting the data
- Assisting with insertion of a **pulmonary artery catheter**, monitoring it, and interpreting the data
- Comprehensive hemodynamic monitoring of the patient
- Care of chest tubes and monitoring the amount of drainage
- Blood and fluid replacement
- Respiratory and cardiovascular support

Medication Calculations

- Thrombolytics
- Antiarrhythmics
- Inotropes

Equipment

Working with invasive cardiac monitoring and monitoring modules, including:

- **TEMP**

- **RESP**
- **ECG**
- **NIBP**
- **SpO₂**
- **EtCO₂**
- **IABP**
- **CO**
- **PAP**
- **PAWP**

Also:

- Working with a **Temporary Pacemaker**
 - Working with a defibrillator
 - Working with infusion pumps and syringe pumps
 - Working with an **Intra-Aortic Balloon Pump (IABP)**
-

NEUROLOGICAL ICU

Neurological Assessment

- Clinical examination of:
- Level of consciousness
- Sensory and motor systems
- Glasgow Coma Scale
- **FOUR Score**
- Assessment of cranial nerves
- Assessment of brainstem function
- Assessment of changes in neurological function
- Neurological criteria for determining brain death

Use of Specialized Assessment Tools

- Use of commonly used tools in intensive care units, including:
- Sedation assessment tools
- Pain-control assessment tools

Monitoring

- Monitoring level of consciousness and sensory-motor systems
- Monitoring intracranial pressure

Complete Neurological Examination

- Eye examination
- Pupil examination
- Sensory and motor examination
- Assessment of consciousness
- Mental-status assessment
- Speech assessment

Diagnostic Procedures

Familiarization with:

- Lumbar puncture
 - CT scan
 - MRI
 - Cerebral angiography
 - Transcranial Doppler ultrasound
 - Electroencephalography (**EEG**)
 - Electromyography (**EMG**)
-

COURSE 23: CRITICAL CARE FOR MULTI-ORGAN DISORDERS AND SPECIAL PATIENT POPULATIONS

Continuation

Provision and application of critical care to patients with acute neurological disorders, including patients with:

- Decreased level of consciousness
- Brain injuries
- Spinal cord injuries
- Cerebral hematomas
- Brain tumors
- Increased intracranial pressure
- Neuromuscular disorders
- Guillain–Barré syndrome (**GBS**)
- Brain death
- Epilepsy and seizures
- Neurosurgical conditions

independently, as well as patients with psychiatric disorders, based on a comprehensive nursing-care model.

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education. Chapter 11, pp. 293–310.
4. Rabinovici, Reuven; Frankel, Heidi L.; Kirton, Orlando C. (Latest edition). *Trauma, Critical Care and Surgical Emergencies: A Case and Evidence-Based Textbook*. Informa Healthcare.
5. Gabriel M. Danovitch. (Latest edition). *Handbook of Transplantation*. Wolters Kluwer, Lippincott Williams & Wilkins.

6. Carlson, Karen. (*Latest edition*). *AACN Critical Care Nursing*. Saunders, Elsevier. Chapters 40 and 41: Shock, pp. 1067–1128; Chapter 42: Trauma, pp. 1134–1144; Chapter 43: Multiple Organ Dysfunction Syndrome, pp. 1189–1205; Chapter 44: Burns, pp. 1212–1257.
7. Morton, Fontaine. (2013). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins. Part Eleven, Chapter 33: Shock and Multiple Organ Dysfunction Syndrome, pp. 457–469; Chapter 34: Trauma, pp. 470–486.
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9. Mohammadreza Asgari, Mohsen Soleimani. (2018). *Reference Book of Specialized Nursing Care in ICU, CCU and Dialysis Units*. Bashari Publications.
10. Malahat Nikrovan-Mofrad, Hassan Shiri. (2013). *Critical Care*. Noor Danesh Publications.

Student Evaluation

- Written entrance examination for the clinical unit
- **Logbook**
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

Note 1: Attendance in the clinical-practicum setting will be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

Note 2: All available educational and clinical capacities should be utilized for teaching this course.

FINAL CLINICAL INTERNSHIP

Course Code: 26

Credits: 4 credits

Prerequisite/Co-requisite: All courses

Course Topics

The requirements of this course shall be completed in accordance with the provisions of the **Educational Regulations for the Master's Degree Program**, as approved by the Supreme Council for Medical Sciences Planning.

COURSE: SPECIALIZED CARE IN THE CARDIAC SURGERY ICU

Course Code: 27

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To become familiar with the principles of specialized nursing care in the **Open-Heart Surgery Intensive Care Unit (ICU)**.

Course Description

In this course, in addition to diagnosis, monitoring, and management of patients, students become familiar with specialized nursing care for patients undergoing open-heart surgery.

Clinical Practicum Topics

- Performing cardiovascular clinical examinations

- Adjusting the mechanical ventilator and selecting the appropriate mode for patients according to the type of surgery and the patient's condition
- Monitoring ventilator data
- Assessing the patient's readiness for weaning from the ventilator and performing weaning
- Respiratory rehabilitation of patients through breathing exercises and use of an **incentive spirometer**
- Routine care during insertion and removal of invasive devices, including:
 - Chest tube
 - Arterial catheter (**arterial line**)
 - Central venous catheter / **CVP**
 - Care of a **pericardial chest tube**
- Performing **advanced cardiopulmonary resuscitation (ACLS)** when indicated
- Interpretation of arterial blood gases and taking appropriate action based on the results
- Blood and fluid replacement and balancing following cardiac surgery
- Monitoring postoperative bleeding and taking appropriate measures in cases of bleeding from chest tubes
- Specialized care of patients undergoing open-heart surgery, including:
 - Valve replacement
 - Heart transplantation
 - Coronary artery bypass grafting
 - Reconstructive procedures
- Respiratory and cardiovascular support using vasoactive medications

Medication Dose Calculations

- Thrombolytic drugs
- Antiarrhythmic drugs
- Inotropic drugs
- Muscle relaxants

Equipment

- Working with a **Temporary Pacemaker**
- Working with a defibrillator and external pacemaker

- Working with infusion pumps and syringe pumps
- Working with an **Intra-Aortic Balloon Pump (IABP)** and providing the related nursing care
- Working with an **ECMO** device and providing the related nursing care
- Working with ventricular and cardiac assist devices (**VAD, CAD**)

Monitoring and Technology

- Invasive and non-invasive monitoring of the cardiovascular and hemodynamic systems and interpretation of the data
 - Application of advanced technology in invasive cardiovascular and hemodynamic monitoring, including the following modules:
 - **TEMP**
 - **RESP**
 - **ECG**
 - **NIBP**
 - **SpO₂**
 - **EtCO₂**
 - **IABP**
 - **CO**
 - **PAP**
 - **PAWP**
 - Monitoring tissue oxygenation and perfusion
 - Familiarization with the application of technology, including:
 - Hardware
 - Software
 - Information-management systems
 - Networks and their structure
 - Applications used in critical care in the open-heart surgery ICU
-

COURSE 27 — REFERENCES AND EVALUATION

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education. Third Edition, Section 2, pp. 231–263.
4. Woods, Susan L.; Froelicher, Erica; Motzer, Suzanne Underhill. (Latest edition). *Cardiac Nursing*. Lippincott. Section 1, pp. 18–28.
5. Kaplow, R.; Hardin, S. R. (Latest edition). *Cardiac Surgery Essentials for Critical Care Nursing*. Jones and Bartlett Publishers.
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8. Morton, Fontaine. (2018). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins. Part Three, pp. 143–179.
9. Moser, D.; Riegel, B. (Latest edition). *Cardiac Nursing: A Companion to Braunwald's Heart Disease*. Saunders, Elsevier. pp. 960–1000.
10. Mir Mohammad Sadeghi, Mohsen. *Key Points in Cardiac Surgery and ICU*. Teymourzadeh Publications, 2015.
11. Mohammadreza Asgari, Mohsen Soleimani. (2018). *Reference Book of Specialized Nursing Care in ICU, CCU and Dialysis Units*. Bashari Publications.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

Note 1: Attendance in the clinical-practicum setting will be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as 7 hours, and the night shift as 12 hours.

Note 2: All available educational and clinical capacities should be utilized for teaching this course.

COURSE: SPECIALIZED CARE IN THE NEUROSURGICAL ICU

Course Code: 28

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To become familiar with the principles of specialized nursing care for patients with neurological disorders and psychiatric disorders hospitalized in intensive care units.

Course Description

In this course, students become familiar with the principles of specialized nursing care for patients with neurological disorders and psychiatric disorders.

Clinical Practicum Topics

Provision and application of specialized neurological critical care to patients with:

- Decreased level of consciousness
- Brain injuries

- Spinal cord injuries
- Cerebral hematomas
- Brain tumors
- Increased intracranial pressure
- Neuromuscular disorders
- **Guillain-Barré syndrome (GBS)**
- Brain death
- Epilepsy and seizures
- Neurosurgical procedures

as well as patients with psychiatric disorders, including:

- Sensory overload
- Sensory deprivation
- Delirium

Care is provided in the intensive care unit based on a nursing-care model, with emphasis on comprehensive care and acquisition of skills in the following areas:

Clinical Skills

- Use of common intensive-care assessment tools, including:
- Sedation assessment tools
- Pain-control tools
- Level-of-consciousness assessment tools
- **GCS**
- **FOUR Score**
- Assessment of neurological function
- Monitoring level of consciousness and sensory-motor systems
- Monitoring **intracranial pressure**
- Complete neurological examination, including:
- Eye examination
- Pupil examination
- Sensory and motor examination
- Level of consciousness

- Mental status
- Speech
- Familiarization with diagnostic procedures, including:
- Lumbar puncture
- CT scan
- MRI
- Cerebral angiography
- Transcranial Doppler ultrasound
- Electroencephalography
- Electromyography
- Providing specialized care to neurosurgical patients

Monitoring and Technology

- Application of advanced technology for invasive monitoring of the nervous system, including:
- Lumbar puncture
- CT scan
- MRI
- Cerebral angiography
- Transcranial Doppler ultrasound
- Electroencephalography
- Electromyography
- Familiarization with the application of technology, including:
- Hardware
- Software
- Information-management systems
- Networks and their structure

in the **Neurosurgical ICU**.

COURSE 28 — REFERENCES AND EVALUATION

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Anish Bhardwaj, Marek A. Mirski. (2010). *Handbook of Neurocritical Care*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
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5. Hickey, Joanne V. (2014). *The Clinical Practice of Neurological & Neurosurgical Nursing*. Amazon.
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8. Black, J.; Hawks, J. (2014). *Medical-Surgical Nursing: Clinical Management for Positive Outcomes*. Elsevier Saunders.
9. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education.
10. Carlson, Karen. (Latest edition). *AACN Critical Care Nursing*. Saunders, Elsevier.
11. Criner, Gerard J.; Barnette, Rodger E.; D'Alonzo, Gilbert E. (2010). *Critical Care Study Guide: Text and Review*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
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14. Townsend, Mary. (2004). *Nursing Diagnosis in Psychiatric and Psychotropic Medication*.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

Note 1: Attendance in the clinical-practicum setting will be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as 7 hours, and the night shift as 12 hours.

Note 2: All available educational and clinical capacities should be utilized for teaching this course.

COURSE: SPECIALIZED CARE IN THE SURGICAL ICU

Course Code: 29

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To become familiar with the comprehensive care of patients undergoing:

- Thoracic surgery
- Abdominal surgery
- Pelvic surgery
- Orthopedic procedures
- Ear, nose and throat (**ENT**) surgery
- Head and neck surgery
- Removal of cancerous masses

Course Description

In this course, students become familiar with the principles and concepts of specialized nursing care during the preoperative and postoperative stages of various surgical procedures and with the manner in which these procedures are performed. Students acquire the necessary abilities for providing care to patients and clients.

Clinical Practicum Topics

102 hours

- Assessment and examination of patients with disorders of different body systems who require surgical intervention
- Assessment and provision of necessary preoperative education for various surgical procedures
- Observation and familiarization with the performance of different surgical procedures and the risks and complications associated with each
- Observation and provision of specialized postoperative care for patients undergoing:
 - Head and neck surgery
 - **ENT** surgery
 - Abdominal surgery
 - Pelvic surgery
 - Orthopedic surgery
- Assessment of patients' needs, including:
 - Nutrition
 - Elimination
 - Hygiene
 - Immunity
- Specialized nutritional care for patients undergoing surgical procedures, including:
 - Head and neck surgery
 - Gastrectomy
 - Total colectomy
 - Whipple procedure
 - Other major procedures
- Pain management in patients undergoing:
 - Cancer surgery

- Major surgery
- Painful surgical procedures
- Psychological care of patients undergoing surgery, particularly patients undergoing removal of cancerous and large masses
- Oral and eye care in patients undergoing various surgical procedures
- Skin and wound care in surgical patients
- Postoperative education, particularly regarding:
 - Diet
 - Medications
 - Rehabilitation

Diagnostic Procedures

- Familiarization with radiographs and the relevant standards for performing and interpreting them and appropriate management of suspicious findings
- Performing and interpreting blood and clinical laboratory tests
- Familiarization with tests used in surgical patients
- Reporting the amount of bleeding and wound drainage and providing wound care

Medication Dose Calculations

- Antihypertensive/vasopressor medications, including:
 - **Norepinephrine**
 - **Dopamine**
- Blood-pressure-lowering medications, including:
 - **Sodium nitroprusside**
 - **Labetalol**
 - **Heparin**

Equipment

- Mechanical ventilator
- Various drains, including:
 - **Penrose**
 - **Redivac**
 - **Jackson-Pratt**
 - Other drains

- Drippers/infusion systems
-

COURSE 29 — MONITORING, REFERENCES AND EVALUATION

Monitoring and Technology

- Patient monitoring
- Use of advanced technology for monitoring
- Familiarization with the application of technology, including:
 - Hardware
 - Software
 - Information-management systems
 - Networks and their structure

in the **Surgical ICU**.

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Herry B.; Jacob, S. *Contemporary Nursing: Issues, Trends and Management*. 3rd Ed. Mosby.
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7. Chulay, M.; Guzzetta, C.; Dossey, B. *AACN Pocket Handbook of Critical Care Nursing*.
8. Carlson, Karen K. *AACN Advanced Critical Care Nursing*.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

Note 1: Attendance in the clinical-practicum setting will be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as 7 hours, and the night shift as 12 hours.

Note 2: All available educational and clinical capacities should be utilized for teaching this course.

COURSE 30: SPECIALIZED CARE IN THE TRAUMA ICU

Course Code: 30

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To provide and apply specialized care for trauma patients with severe injuries and multiple injuries in specialized trauma-care units, based on a comprehensive nursing-care model.

Course Description

In this course, students become familiar with specialized care for patients with trauma, particularly patients with **head trauma**, **spinal trauma**, **pelvic trauma**, and **fractures**,

and learn how to provide comprehensive care with emphasis on the comprehensive nursing-care model.

Clinical Practicum Topics

Practical: 102 hours

The student should be able to independently examine the patient and provide nursing care in the trauma unit and acquire the following skills:

Diagnostic Procedures

- Reporting **plain radiography**
- Preparing the patient for **angiography** through the femoral artery
- Calculation of drug doses, including:
 - Antibiotics
 - Thrombolytics
 - Sedatives
 - Painkillers/analgesics
 - Anti-biotics
 - Inotropes

Working with Equipment

- Working with **drains** and their removal, including:
 - Chest tubes
 - **CVP catheter**
 - Intracranial drains
- Working with an **oropharyngeal airway**
- Working with a **nasopharyngeal airway**
- Working with an **intraosseous line**
- Connecting the patient to a mechanical ventilator
- Mechanical ventilation using an **ambu bag**
- Applying different types of positioning and movement restrictions in trauma patients
- Applying different types of cervical collars
- Applying different types of pelvic binders

Monitoring and Technology

- Monitoring and recording vital signs using advanced technology
-

COURSE 30 — CONTINUATION

Additional Clinical Skills

- Providing care to trauma patients with **penetrating and non-penetrating injuries**
- Working with the **FAST (Focused Assessment with Sonography in Trauma)** procedure
- Performing and monitoring the **intra-abdominal pressure** measurement
- Performing abdominal computed tomography (**DPL/CT**) and related preparation/monitoring

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Suzanne Burns. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education.
4. George W. Toward, L. O. N.; Neal? *Trauma nursing: The right patient in the shortest time*. The source text lists this reference as an article concerning trauma patients.
5. Skinner D. V.; Driscoll P. A. (2013). *ABC of Major Trauma*. 4th ed. West Sussex: Wiley.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Note

Attendance in the clinical-practicum setting shall be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

COURSE 31: SPECIALIZED CARE IN THE INTERNAL MEDICINE ICU

Course Code: 31

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To become familiar with and provide specialized nursing care for patients hospitalized in the Internal Medicine ICU with conditions such as:

- **CVA**
- **COPD**
- Pneumonia
- Pleural effusion
- Pulmonary embolism
- Diabetic ketoacidosis
- Sepsis
- Acute kidney disease
- Acute gastrointestinal bleeding
- Other critical medical conditions

Course Description

In this course, students become practically familiar with the recognition and identification of specific needs and the provision of specialized care to patients with respiratory and cardiovascular diseases and other acute medical conditions hospitalized in the Internal Medicine ICU.

Clinical Practicum Topics

Practical: 102 hours

- Assessment and physical examination of patients hospitalized in the Internal Medicine ICU
- Developing nursing-care programs for patients with respiratory and pulmonary disorders, including:
 - **COPD**
 - Pneumonia
 - Pulmonary embolism
 - Pleural effusion
 - Other respiratory disorders
- Providing medical care and protecting patients with respiratory and internal disorders in specialized care units based on a comprehensive nursing-care model, with emphasis on comprehensive care, learning, and acquiring skills in the following areas

Diagnostic Procedures

- Laboratory investigations
- Chest and other radiography
- **CT scan** of the brain, kidney, lung, and other organs
- **ERCP**
- **Paracentesis**
- **Biopsy**
- Working with and comparing different methods of interpreting oxygenation and ventilatory support
- Familiarization with methods of assessing chest X-rays
- Familiarization with different invasive and non-invasive methods of respiratory support and providing specialized care related to them

- Monitoring patients undergoing mechanical ventilation and preventing associated complications
 - Weaning patients from mechanical ventilation and providing appropriate care
 - Working with home mechanical-ventilation devices
 - Working with methods of preventing and managing **DVT**
 - Familiarization with different types of **delirium** and their management
-

COURSE 31 — CONTINUATION

Medication Dose Calculations

- Thrombolytics
- Sedatives
- Analgesics
- Antibiotics
- Inotropes
- Calculation of the volume and concentration of nutritional formulas based on the patient's needs

Working with Equipment

- Mechanical ventilator
- Non-invasive and invasive mechanical ventilation devices
- Pulse oximeter
- Cardiac monitor
- DVT pump
- Various types of drains
- Various types of tubes
- Various types of dressings

Use of Tools and Technology

- Tools for assessing delirium and sedation

- Tools for assessing **DVT risk**
- Prevention and recording of vital signs using advanced technology
- Familiarization with the use of technology, including:
 - Hardware
 - Software
 - Information-management systems
 - Networks and their structure

in the Internal Medicine ICU.

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
 2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
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 8. Morton, Fontaine. (2018). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins.
 9. Anish Bhardwaj, Marek A. Mirski. (Latest edition). *Handbook of Neurocritical Care*. Second Edition. Springer.
-

COURSE 31 — STUDENT EVALUATION

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Note

Attendance in the clinical-practicum setting shall be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

COURSE 32: SPECIALIZED CARE IN THE CCU

Course Code: 32

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To provide and apply specialized nursing care to patients with cardiovascular disorders, including:

- **Coronary artery disease**
- **Acute coronary syndrome**
- **Heart failure**
- **Coronary artery disease requiring intervention**
- Other cardiovascular disorders requiring specialized care

Course Description

In this course, students become familiar with the cardiovascular system and the principles of specialized care for patients with cardiovascular disorders. Through critical thinking and practical application, students develop the ability to perform their professional duties in specialized cardiovascular units and become familiar with **cardiac catheterization** and **cardiovascular angiography**.

Clinical Practicum Topics

Practical: 102 hours

- Assessment and physical examination of patients hospitalized in the CCU
- Familiarization with specialized methods of measuring blood pressure and heart rate, including:
 - **18-lead ECG**
 - **24-hour Holter monitoring**
- Angiography
- Echocardiography
- Other relevant cardiovascular diagnostic methods
- Familiarization with **cardiac electrophysiology**
- **Coronary angiography**
- **Cardiac catheterization**
- **Radionuclide cardiac imaging**
- **Sonography/Doppler of the heart and vessels**
- Provision of specialized care to patients with cardiovascular disorders, including:
 - Coronary artery disease
 - Acute coronary syndrome
 - Heart failure
 - Other cardiovascular diseases requiring specialized care
- Development of rehabilitation programs for patients with cardiovascular diseases
- Postoperative nursing care following cardiac catheterization

Monitoring and Technology

- Familiarization with invasive and non-invasive monitoring of hemodynamic parameters, including:
 - **CVP**
 - **PAP**
 - **PCWP**
- Monitoring and recording vital signs using advanced technology
- Familiarization with the application of technology, including:
 - Hardware
 - Software
 - Information-management systems
 - Networks and their structure

in the CCU.

Diagnostic Skills

- Performing a proper **12-lead electrocardiogram**
- Interpretation and reporting of the electrocardiogram

Medication Dose Calculations

- Thrombolytics
- Antiarrhythmic drugs
- Inotropes

COURSE 32 — CONTINUATION

Working with Equipment

- Working with cardiac and respiratory monitoring systems/modules, including:
 - **NIBP**
 - **SpO₂**
 - **CO₂**

- **TEMP**
- **RESP**
- **ECG**
- Principles of working with cardiac pacemakers:
 - Internal
 - External
- Principles of working with defibrillators and **DC shock**:
 - Defibrillation
 - Cardioversion
- Principles of working with infusion pumps and syringe pumps
- Principles of working with a **DVT pump**
- Principles of working with an **EECP (Enhanced External Counterpulsation)** pump
- Principles of working with a **Holter** cardiac and blood-pressure monitoring system

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
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5. Morton, Fontaine. (2018). *Essentials of Critical Care Nursing*. Lippincott Williams & Wilkins. Part Three, pp. 143–179.
6. **Mansour Moghadam, Ali Asghar**. (1391). *Specialized Nursing Care in CCU, ICU and Dialysis Units*. Rafee Publications.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

Note 1: Attendance in the clinical-practicum setting shall be according to the working shifts. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

Note 2: All educational and clinical capacities available should be utilized for teaching this course.

COURSE 33: SPECIALIZED CARE IN THE HEMODIALYSIS UNIT

Course Code: 33

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To assess patients and provide specialized nursing care in the **Hemodialysis Unit**.

Course Description

In this course, students evaluate patients undergoing hemodialysis, determine their appropriate **dialysis dose**, and become familiar with the necessary procedures for preparing different types of dialysis machines and their parameters. Students also learn how to educate patients and their families regarding the prevention of complications and appropriate care during dialysis sessions.

Clinical Practicum Topics

Practical: 102 hours

- Calculating the patient's dialysis adequacy:
- **Kt/V**
- **URR**
- Use of technology, including:
- Hardware
- Software
- Information-management systems
- Networks and their structure

Diagnostic Procedures

- Complications during hemodialysis
- Nursing care related to complications during hemodialysis
- Recognition of complications during dialysis sessions
- Educating the patient regarding prevention of complications during dialysis and providing education to the patient and family
- Monitoring and controlling **heparinization** during hemodialysis and maintaining anticoagulation between dialysis sessions using clinical monitoring profiles and **ultrafiltration**
- Dialysis management for control of heparinization during hemodialysis
- Adjustment of dialysis concentration according to the patient's condition and the dialysis machine
- Calculation of dialysis-fluid concentration based on the patient's potassium level
- Determination of appropriate dialysis duration based on dialysis adequacy tests
- Selection of appropriate dialysate based on the patient's condition
- Calculation of **Kt/V** using the **OCM** device
- Regulation of blood-flow rate and dialysate-flow rate according to the type of dialysate
- Identification of causes of dialysis-machine alarms
- Management and control of machine alarms
- **Dry dialysis**
- Adjustment of machine temperature according to the patient's condition
- Clinical assessment and monitoring, including:
- Laboratory tests
- Radiography

- Biopsy
 - Calculation of medication doses:
 - Determining appropriate medication doses based on laboratory results
 - Determining appropriate doses during hemodialysis according to the patient's condition
 - Teaching the patient appropriate medication use and self-care
-

COURSE 33: SPECIALIZED CARE IN THE HEMODIALYSIS UNIT

Continuation

Working with Equipment

- Working with different types of dialysis machines
- Setting the parameters of **Fresenius dialysis machines**, including **AK 98** and **AK 96**, according to the patient's condition
- Setting the **sodium profile** and **ultrafiltration profile** according to the patient's condition
- Measuring the hardness of incoming water
- Sampling incoming water for microbiological control

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.

Additional References

1. Brenner, B. M.; Rector. (2012). *The Kidney*. 8th Edition. Elsevier Saunders.
2. Daugirdas, J. T.; Blake, P. G.; Ing, T. S. (2015). *Handbook of Dialysis*. Lippincott Williams & Wilkins.

3. Drukker, W.; Parsons, F. M.; Maher, J. F. (2012). *Replacement of Renal Function by Dialysis: A Textbook of Dialysis*. Springer Science & Business Media.
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5. Kallenbach, Judith Z. (2016). *Review of Hemodialysis for Nurses and Dialysis Personnel*. Textbook.
6. Levy, J.; Brown, E.; Lawrence, A. (2016). *Oxford Handbook of Dialysis*. Oxford University Press.
7. Nissenson, A. R.; Fine, R. E. (2016). *Handbook of Dialysis Therapy E-Book*. Elsevier Health Sciences.
8. Terrill, B. (2016). *Renal Nursing: A Guide to Practice*. Routledge.
9. Hashemi, M.; Shahgholian, N. (1392). *Renal Failure and Replacement Therapies*. Heydari Publications.
10. Atabek, S. et al. (1388). *The Nurse and Dialysis*. Second Edition. Soha Publications.
11. Azmandian, J. et al. (1388). *Dialysis*. Second Edition. Soha Publications.
12. Zakeri Moghaddam, M.; Ali-Asghar Pour, M. (1391). *Specialized Nursing Care in CCU, ICU and Dialysis Units*. Tehran: Andisheh Rafee Publications.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Note

Clinical-practicum attendance shall be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

COURSE 34: SPECIALIZED CARE IN THE EMERGENCY DEPARTMENT

Course Code: 34

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To apply specialized care for patients with emergency conditions in the Emergency Department based on a comprehensive nursing-care model.

Course Description

In this course, students become familiar with various methods of **triage** and with the provision of specialized care to emergency patients, including patients with:

- Trauma
- Poisoning
- Cardiovascular emergencies
- Respiratory emergencies
- Chemical and thermal burns
- Electrical injuries
- Inhalation injuries
- Traumatic brain injuries
- Spinal cord injuries
- Fractures
- Drowning
- Hypothermia
- Heat-related illnesses
- Patients with various types of seizures
- Patients with disseminated intravascular coagulation (**DIC**)
- Patients with thromboembolic disorders
- Patients with **hemophilia**
- Patients with **sickle-cell anemia**
- Patients with cancer-related emergencies, including:

- Hypercalcemia
 - Tumor lysis syndrome
 - Spinal cord compression
 - Superior vena cava syndrome
 - Cardiac tamponade
 - Patients requiring emergency cardiovascular care
-

COURSE 34 — CONTINUATION

Clinical Practicum Topics

Practical: 102 hours

Diagnostic Procedures

- Radiography, including:
 - Chest
 - Abdomen
 - Pelvis
 - Skeletal system
 - Skull
 - Other relevant radiographs
- **CT scan** of:
 - Brain
 - Chest
 - Abdomen
 - Skeletal system
 - Skull
 - Other areas as required
- **MRI** of:
 - Brain

- Vertebrae
- Chest
- Abdomen
- Musculoskeletal system
- Other areas as required
- Laboratory tests, including:
 - **CBC**
 - **U/A**
 - **U/C**
 - **ABG**
 - **FAST (Focused Assessment with Sonography for Trauma)**
 - **DPL (Diagnostic Peritoneal Lavage)**
- Abdominal computed tomography

Medication Dose Calculations

- Antibiotics
- Sedatives
- Analgesics
- Anticoagulants, including:
 - Heparin
 - Warfarin
- Antiarrhythmic medications
- Thrombolytic medications

Equipment

- Working with cardiac monitoring modules, including:
 - **NIBP**
 - **SpO₂**
 - **CO₂**
 - **TEMP**
 - **RESP**
 - **ECG**
- Principles of working with cardiac pacemakers

- Principles of working with defibrillators and **DC shock**
- Principles of working with infusion pumps and syringe pumps

Monitoring and Technology

- Monitoring and recording vital signs using advanced technology
- Familiarization with the use of technology, including:
 - Hardware
 - Software
 - Information-management systems
 - Networks and their structure

in the Emergency Department.

- Monitoring intra-abdominal pressure in patients with abdominal trauma (**intra-abdominal pressure**).

COURSE 34 — REFERENCES AND EVALUATION

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education.
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6. McQuillan, K.; Whalen, E.; Flynn-Makic, M. (Last edition). *Trauma Nursing: From Resuscitation Through Rehabilitation*. 4th ed. Philadelphia: Saunders.
7. Skinner, D. V.; Driscoll, P. A. (2013). *ABC of Major Trauma*. 4th ed. West Sussex: Wiley.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

Note 1: Attendance in the clinical-practicum setting shall be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

Note 2: All available educational and clinical capacities shall be utilized for teaching this course.

COURSE 35: MANAGEMENT OF SPECIAL CARE UNITS

Course Code: 35

Prerequisite/Co-requisite: All courses

Credits: 1 credit

Type: Theoretical

General Objective

To acquire the necessary skills in applying management concepts within the management system of specialized nursing services in intensive care units.

Course Description

In this course, students become familiar with theories and concepts of nursing management and the principles governing specialized-care units and learn how to apply these principles practically in managing specialized-care units.

Course Topics

Theoretical: 17 hours

- Familiarization with the physical environment, organizational structure, and organizational chart
- Review of:
 - Mission
 - Vision
 - Goals
 - Organizational chart
 - Strategic plan
 - Central management policies
 - Available information
 - Organizational calendar
- Evaluation of the organization of the nursing center in accordance with the mission and vision of the center
- Review of the supervision system, control system, evaluation, and accountability of the nursing system
- Review of the status of human-resource management in the relevant nursing department
- Evaluation of the physical environment of the medical center and its different departments; description of existing problems and potential problems in this area
- Reporting and analyzing the activities of the center's strategic plan based on available information and the organizational calendar
- Review of the status of human-resource management in the relevant nursing center, identification of staff diversity, and comparison with existing standards

- Assessment of patient satisfaction with nursing services based on the existing forms in the hospital and provision of corrective forms using available resources
 - Calculation of the **nurse-to-patient ratio** and **turnover rate**, and identification of defects in the staffing structure of the relevant nursing center
 - Review of methods for evaluating internal and external nursing services
 - Review of the process of delegating authority within the hospital nursing system
 - Analysis and comparison of the rights and benefits of nursing staff according to the type of personnel employed
 - Determining how to implement plans to improve the utilization and productivity of the nursing center and its human resources
 - Identification of managerial challenges and problems and provision of appropriate solutions
 - Determination of the status of structural, process, and outcome standards in specialized-care units
-

COURSE 35 — REFERENCES AND EVALUATION

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Marquis, L.; Huston, C. J. (Last Edition). *Leadership Roles & Management Functions in Nursing*.
4. Roussel, L. (Last Edition). *Management & Leadership for Nurse Administrators*. Jones & Bartlett.
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8. Yoder-Wise. (*Last Edition*). *Leading and Managing in Nursing*. Mosby.
9. Clark, C. C. (*Last Edition*). *Creative Nursing Leadership & Management*. Jones & Bartlett.
10. Supreme Council for Medical Sciences Planning. *Standards for Designing Medical Treatment Centers*, Bulletin No. 287-1, Organization of Management and Planning of the Country, 1383–1385.

Student Evaluation

- Written entrance examination for the clinical unit
 - Submission of a **portfolio**
-

COURSE 36: SPECIALIZED CARE IN THE RESPIRATORY ICU

Course Code: 36

Prerequisite/Co-requisite: All courses

Credits: 1 credit

Type: Clinical Practicum

General Objective

To become familiar with the principles of specialized nursing care for patients with respiratory disorders.

Course Description

In this course, students become familiar with the principles of specialized care for patients with respiratory disorders, particularly patients receiving **mechanical ventilation**, based on comprehensive care principles.

Clinical Practicum Topics

Practical: 102 hours

Provision and application of specialized care for patients with respiratory disorders, including patients with:

- **Acute respiratory distress syndrome (ARDS)**
- Severe respiratory failure
- Respiratory failure requiring mechanical ventilation
- Patients undergoing respiratory and pulmonary surgery

based on a comprehensive nursing-care model, with emphasis on comprehensive care and acquisition of skills in the following areas:

Diagnostic and Clinical Skills

- Reporting chest radiographs
- Performing and monitoring **pulse oximetry**
- Working with and monitoring **capnography**
- Monitoring and reporting arterial blood-gas results
- Performing and reporting advanced laboratory tests
- Performing and reporting **bronchoscopy**
- Interpreting the patient's respiratory condition based on:
 - Mechanical ventilation data
 - Chest radiography
 - ABG results
 - Respiratory monitoring results
- Correct use of oxygen-delivery devices and oxygen therapy
- Performing various chest-physiotherapy techniques
- Correct use of inhalers, nebulizers, and different oxygen-delivery devices

- Insertion of an **oropharyngeal airway**
 - Insertion of a **nasopharyngeal airway**
 - Endotracheal intubation
 - Securing and fixing the endotracheal tube
 - **Extubation**
 - Open and closed endotracheal suctioning
 - **Tracheal suctioning**
 - Use of different methods of **closed suctioning**
 - Application of the best protocol for oral care
 - Management of endotracheal-tube cuff pressure or tracheostomy using different methods
 - Monitoring complications related to tracheostomy
 - Open and closed superficial/deep tracheostomy suctioning
 - Preparing the mechanical ventilator and connecting the patient to the device
-

COURSE 36 — CONTINUATION

Mechanical Ventilation

- Monitoring ventilator data
- Comparing different levels of **PEEP** and selecting the optimal PEEP level based on the patient's specific respiratory condition
- Assessing the patient's readiness for weaning from the ventilator using common assessment tools
- Selecting the best method for separating the patient from mechanical ventilation, including:
 - Synchronized methods
 - Non-synchronized methods
 - Other appropriate methods
- Applying methods of caring for the patient during and after chest surgery

- Using different methods and devices for **non-invasive ventilation** and providing specialized care related to them
- Mobilizing the patient while receiving mechanical ventilation and transferring the patient to a chair
- Working with home mechanical-ventilation devices
- Applying non-invasive ventilation in special patient populations
- Managing complications of non-invasive ventilation
- Applying monitoring and management methods for patients receiving mechanical ventilation based on international guidelines
- Preventing complications caused by mechanical ventilation
- Assessing and supporting the nutritional needs of patients receiving mechanical ventilation, including:
 - Nutritional assessment
 - Feeding methods
 - Use of nutritional supplements
- Preparing the patient for transfer from mechanical ventilation and monitoring the patient during the transfer
- Routine care during insertion and removal of invasive devices, including:
 - Chest tube
 - Arterial catheter
 - Central venous catheter (**CVP**)
- Monitoring patients with chest tubes
- Management of patients with **pleural effusion**
- Drainage of the **pleural space**

Medication Dose Calculations

- Thrombolytics
- Sedatives
- Analgesics
- Antibiotics
- Bronchodilators
- Inotropes

Equipment

- Invasive and non-invasive mechanical ventilators
- **Pulse oximeter**
- **Cough Assist** device
- **BiPAP** device
- Nebulizer and various types of masks and tracheostomy devices
- Various types of tubes

Use of Tools and Technology

- Use of relevant tools and guidelines for respiratory-care assessment and management
 - Use of technology and monitoring systems in the Respiratory ICU
-

COURSE 36: SPECIALIZED CARE IN THE RESPIRATORY ICU

Continuation

Tools, Guidelines, Monitoring, and Technology

- Tools for assessing **agitation and sedation**
- Guidelines for prevention of **ventilator-associated pneumonia (VAP)**
- Tools for identifying **delirium**
- Guidelines for prevention of **deep vein thrombosis (DVT)**
- Tools for identifying pain in patients receiving mechanical ventilation
- Tools for assessing readiness for weaning from mechanical ventilation
- Guidelines for gradual weaning from mechanical ventilation
- Guidelines for tracheostomy care
- Guidelines for endotracheal tube care
- Monitoring and Technology:
 - Monitoring and recording vital signs using advanced technology
 - Familiarization with the application of technology, including hardware, software, information-management systems, networks, and their structure, in the Respiratory ICU

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.
3. Burns, Suzanne. (2014). *AACN Essential Critical Care Nursing*. McGraw-Hill Education.
4. Criner, Gerard J.; Barnette, Rodger E.; D'Alonzo, Gilbert E. (Latest edition). *Critical Care Study Guide: Text and Review*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
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8. Asgari, Mohammadreza; Soleimani, Mohsen. (2018). *Reference Book of Specialized Nursing Care in ICU, CCU and Dialysis Units*. Bashari Publications.
9. Nikrovan-Mofrad, Malahat; Shiri, Hassan. (1392). *Critical Care*. Noor Danesh Publications.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

Note 1: Attendance in the clinical-practicum setting shall be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

Note 2: All available educational and clinical capacities shall be utilized for teaching this course.

COURSE 37: SPECIALIZED CARE IN OBSTETRICS AND GYNECOLOGY

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To become familiar with the principles of nursing care in **obstetrics and gynecological diseases**.

Course Description

In this course, students become familiar with nursing care for patients experiencing **normal and abnormal pregnancies**, breastfeeding, and screening for common gynecological cancers.

Clinical Practicum Topics

102 hours

Students shall acquire routine and specialized nursing-care skills for women experiencing complications of pregnancy, including:

- Hyperemesis gravidarum
- First- and second-half pregnancy bleeding
- Premature rupture of membranes (**PROM**)
- Preterm labor
- Hypertensive disorders of pregnancy
- Gestational diabetes
- Thrombophlebitis and thromboembolic complications
- Fetal complications during pregnancy, including:
- Intrauterine growth restriction (**IUGR**)
- Intrauterine fetal death (**IUFD**)

- Blood-group incompatibility
- Fetal hydrops
- Amniotic fluid embolism
- Umbilical cord prolapse
- **HELLP syndrome**
- Postpartum hemorrhage

Clinical Skills

Training shall be provided in the following areas:

- Performing periodic examinations during pregnancy
- Monitoring fetal movements
- Monitoring uterine contractions
- Identifying cases requiring referral
- Performing the required tests, including **NST, OCT, and CST**
- Performing the necessary interventions in cases of bleeding in pregnant women
- Performing the necessary interventions in cases of postpartum hemorrhage
- Assessment of hematoma of the birth canal
- Providing care for women receiving **magnesium sulfate**
- Providing care for women undergoing **epidural and spinal anesthesia**
- Providing appropriate interventions in cases of seizures
- Providing appropriate interventions for abnormal fetal heart-rate changes during labor
- Managing umbilical cord prolapse
- Assessment and management of thrombophlebitis
- Nutritional care during normal and abnormal pregnancies

COURSE 37 — CONTINUATION

Medication Dose Calculations

- **Magnesium sulfate**
- Calculation of the volume of fluids received through **IV infusion**

Working with Equipment

- Monitoring equipment, including:
 - **FHR**
 - **CTG**
- Fetal monitoring equipment
- **Pulse oximeter**

Use of Tools and Guidelines

- Integrated maternal care

Monitoring and Technology

- Monitoring and recording vital signs using advanced technology
- Monitoring fetal heart rate using the latest available technology

References

Persian References

1. Ministry of Health and Medical Education. *Integrated Maternal Health Care*. Seventh Revision, 1395.
2. Zighami Kashani, R. *Maternal and Neonatal Health Nursing*. 1396, Fifth Edition.

International References

The course references also include the relevant international sources listed in the original document, including references concerning obstetric nursing and maternal care.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **DOPS**
- Submission of a **portfolio**

Note

Attendance in the clinical-practicum setting shall be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

COURSE 38: SPECIALIZED CARE IN THE BURN ICU

Prerequisite/Co-requisite: All courses

Credits: 2 credits

Type: Clinical Practicum

General Objective

To become familiar with and provide specialized nursing care to patients with:

- Inhalation injuries
- Head and neck burns
- Electrical burns
- Severe burns

in the **Burn Intensive Care Unit (BICU)**.

Course Description

In this course, students practically learn the identification, monitoring, and specific and supportive care of patients with inhalation injuries, head and neck burns, electrical burns, and severe burns hospitalized in the **Burn ICU (BICU)**.

Clinical Practicum Topics

102 hours

- Assessment and physical examination of patients hospitalized in the Burn ICU (**BICU**)
- Correct determination of the **percentage and degree of burn**
- Assessment of the patient's level of consciousness based on the **Glasgow Coma Scale (GCS)** and **FOUR Score**
- Use of common intensive-care assessment tools, including:
 - Sedation-assessment tools
 - Pain-assessment tools
- Familiarization with and placement of patients in appropriate positions according to their condition, including:
 - Head trauma
 - Spinal trauma
 - Other traumatic conditions
 - Burn-wound care
- Use of advanced dressings, such as **silver-containing dressings**, according to the physician's orders and the patient's condition
- Care of the **graft and donor site**
- Respiratory and limb physiotherapy
- Education of burn patients and their families regarding:
 - Wound care
 - Dressing
 - Medication use
 - Diet
 - Infection control
- during hospitalization and at discharge
- Identification of signs and symptoms of infection in burn patients
- Proper use of:
 - Inhalers
 - Nebulizers
 - Different oxygen-therapy devices
- Arterial blood sampling and interpretation of **ABG**
- Psychological, emotional, and social support for the patient and family
- Oral, nasal, endotracheal-tube, and tracheostomy suctioning using open and closed techniques

- Ability to establish an artificial airway, including **endotracheal intubation**
 - Monitoring cuff pressure of the endotracheal tube and tracheostomy
 - **Extubation**
 - Assessment of the patient's readiness for weaning from the ventilator
 - Weaning the patient from mechanical ventilation
 - Preparing the patient and equipment for insertion of invasive devices
 - Cardiac monitoring and identification of various arrhythmias in burn patients, particularly patients with electrical burns
 - Familiarization with chest-drainage methods and provision of related care
-

COURSE 38 — CONTINUATION

Respiratory Support

- Use of different methods and devices for invasive and non-invasive ventilation and provision of specialized care related to them
- Selection of the appropriate ventilator mode based on assessment of the patient's respiratory status
- Monitoring oxygenation in patients receiving mechanical ventilation and management and prevention of related complications
- Application of methods for monitoring and managing agitation and pain in mechanically ventilated patients using standard clinical guidelines
- Application of different methods for prevention and monitoring of **DVT**
- Identification of different types of **delirium** in the ICU and management according to relevant clinical guidelines
- Assessment and nutritional support of mechanically ventilated patients, including:
 - Nutritional monitoring
 - Feeding methods
 - Use of nutritional supplements
- Glycemic control in critically ill patients using evidence-based clinical guidelines

- Preparation of critically ill mechanically ventilated patients and monitoring them during transport
- Participation in the development of rehabilitation programs, rehabilitation stages, and types of rehabilitation appropriate for patients with:
 - Inhalation burns
 - Head and neck burns
 - Electrical burns
 - Severe burns
- Provision and application of therapeutic and supportive care for patients with inhalation, head and neck, electrical, and severe burns in the Burn ICU (**BICU**), based on a comprehensive nursing-care model, with emphasis on holistic care and acquisition of skills in the following areas:

Diagnostic Procedures

- Laboratory investigations
- Chest radiography and radiography of other organs
- Burn-wound sampling and culture
- Application and comparison of methods for interpreting patient oxygenation and ventilation
- Measurement of relevant respiratory parameters
- Measurement of **intra-abdominal pressure**
- Measurement of **intracranial pressure**

Medication Dose Calculations

- Antibiotics
- Analgesics
- Sedatives
- Inotropes
- Thrombolytics
- Calculation of the volume and concentration of nutritional formulas according to the patient's needs

Working with Equipment

- Invasive and non-invasive mechanical ventilators

- Pulse oximeter
- Cardiac monitor
- DC shock/defibrillator
- Infusion pump
- Different types of drains

Tools and Guidelines

- Guidelines for fluid resuscitation and fluid therapy in burn patients
- Guidelines for burn-wound care
- Tools for assessing agitation and sedation
- Tools for identifying delirium
- Guidelines for prevention of **DVT**

Monitoring and Technology

- Monitoring and recording vital signs using advanced technology
- Familiarization with the application of technology, including:
 - Hardware
 - Software
 - Information-management systems
 - Networks and their structure

in the Burn ICU.

COURSE 38 — REFERENCES AND EVALUATION

References

1. Tonja M. Hartjes. (2018). *AACN Core Curriculum for High Acuity, Progressive and Critical Care Nursing*. 7th Ed. Elsevier, St. Louis.
2. Linda N. Urden, Kathleen M. Stacy, Mary E. Lough. (2018). *Critical Care Nursing: Diagnosis and Management*. 8th Ed. Elsevier.

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4. Criner, Gerard J.; Barnette, Rodger E.; D'Alonzo, Gilbert E. (*Latest edition*). *Critical Care Study Guide: Text and Review*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
5. DeHaan, Richard L.; S. E. H. (2014). *Burn Care*. The reference is listed in the original document.
6. Alspach, Joanne. (*Latest edition*). *Core Curriculum for Critical Care Nursing*.
7. Bhardwaj, Anish; Mirski, Marek A. (*Latest edition*). *Handbook of Neurocritical Care*. Second Edition. Springer, New York, Dordrecht, Heidelberg, London.
8. Additional Persian reference: Daly, Carol. Translated by Forouzi, Sedigheh; Forouzi, Saba; Yousefi, Hojjatollah. (1395). *Principles of Wound Care: A Guide for Nurses*. Isfahan: Publications of Isfahan University of Medical Sciences.

Student Evaluation

- Written entrance examination for the clinical unit
- Clinical examinations using **Mini-CEX** and **DOPS**
- Submission of a **portfolio**

Notes

Note 1: Attendance in the clinical-practicum setting shall be according to the working shifts and on a rotating basis throughout the week. Morning and evening shifts are each calculated as **7 hours**, and the night shift as **12 hours**.

Note 2: All available educational and clinical capacities shall be utilized for teaching this course.

CHAPTER FOUR

EDUCATIONAL PROGRAM STANDARDS

Master's Degree Program in Critical Care Nursing

EDUCATIONAL PROGRAM STANDARDS

The following items represent the **minimum requirements** that must be considered by evaluators during the evaluation process of educational programs:

- It is essential that the program, its educational facilities, and the required general educational resources be available, including:
 - Dedicated classrooms
 - Conference hall
 - Dedicated group library
 - General library
 - Computer center equipped with sufficiently high-speed Internet
 - Required specialized software
 - Dedicated website for the department/group
 - Educational filing and archiving system
- It is essential that the educational department provide the specialized facilities required for the program, including:
 - Specialized laboratories
 - Hospital-based clinical settings
 - Community-based clinical settings

in accordance with the provisions specified in the educational program.

- It is essential that the educational department provide the required welfare and cultural facilities, including:
 - Faculty offices
 - Student rooms
 - Cafeteria

- Prayer room
- Dormitory
- Cultural and sports facilities
- It is essential that the educational settings outside the department used for clinical rotations receive the final approval of the evaluation team.
- It is essential that the required patients and specialized materials needed for education be available to learners in sufficient numbers and in an acceptable variety, including:
 - Patients
 - Active hospital beds
 - Laboratory specimens
 - Food samples
 - Pharmaceutical or cosmetic samples

according to the requirements of the educational program.

- It is essential that the capital and consumable equipment specified in the program be provided to the program implementers and that their quality be approved by the evaluation team.
- It is essential that the facilities required for educational practice and relevant research, appropriate to the field being evaluated, be available to faculty members and learners and that this availability be approved by the evaluators.
- It is essential that the educational department under evaluation have the required **faculty members** according to the provisions of the educational program and the approvals of the Council for the Expansion of Medical Sciences, and that relevant documentation be made available to the evaluation team.
- It is essential that the educational department have the trained staff required for educating learners in the program, in accordance with the educational program.
- The **educational program** must be available to all relevant stakeholders.
- It is essential that educational regulations, instructions, guidelines, laws, and regulations be accessible to all stakeholders and that learners be briefed on them at the beginning of the program. Documentation of this process must be available to evaluators.

- It is essential that the required educational resources, including textbooks and journals needed by learners and faculty members, be available in the educational department's library.
- It is essential that learners be actively present at their workplace throughout the week according to the number of days specified in the applicable regulations, perform their duties under the supervision of faculty members or senior learners, and that the group's weekly or monthly schedule be available.
- It is essential that the content of the theoretical classes correspond, at least in the specified proportion, to the course table included in the educational program.
- It is essential that, according to the schedule prepared by the department/group, learners actively participate in all educational and research activities of the department, including:
 - Intra-departmental conferences
 - Seminars
 - Practical activities
 - Research activities
 - Teaching lower-level learners

Documentation of such participation must be made available to evaluators.

- It is essential that the **skills-training process** throughout the program receive an acceptable level of satisfaction from learners and approval from the evaluators.

CHAPTER FOUR

EDUCATIONAL PROGRAM STANDARDS

Continuation

The following requirements shall be considered as part of the educational program standards:

- It is essential that the **Dress Code regulations** be communicated to learners at the beginning of the program.
 - It is essential that learners be informed about the **ethical codes** included in the curriculum and comply with them. Their compliance shall be evaluated and confirmed by the evaluators.
 - Documentation of educational activities performed inside and outside the educational department, awards, commendations, warnings, and other necessary supporting documents shall be maintained.
 - It is essential that learners perform the activities specified in the program, record them in their **Logbook**, and have them signed by the supervising faculty members.
 - It is essential that the **Logbook** be continuously completed by learners and monitored and supervised by the relevant faculty members, and that the necessary written feedback be provided to them.
 - It is essential that, according to the academic year, learners complete courses or activities outside the educational department, where applicable, and obtain a certificate from the relevant authority. The relevant documentation shall be made available to the evaluation team.
 - It is essential that prior scientific and interdisciplinary cooperation between the main educational department and other educational departments be anticipated and planned, and that documentation demonstrating such cooperation be available.
 - It is essential that, in educational activities, at least **70% of the teaching methods and techniques** specified in the program be utilized.
 - It is essential that learners be evaluated throughout the program using the methods specified in the program and that the relevant documentation be submitted to the evaluation team.
-

CHAPTER FIVE

EDUCATIONAL PROGRAM EVALUATION

Master's Degree Program in Critical Care Nursing

PROGRAM EVALUATION

Formative Evaluation of the Program

The evaluation of the educational program shall be carried out using appropriate methods and mechanisms. The evaluation mechanisms are as follows:

1. Formative Evaluation

During the program, **twice in each academic year**, all stakeholders, including:

- Learners
- Faculty members
- Heads of educational departments
- Clinical instructors

shall be evaluated with regard to the following:

- Satisfaction with the educational content
- Satisfaction with the educational methods used
- Satisfaction with the examination methods
- Satisfaction with the educational facilities

2. Summative Evaluation

At the end of the educational program, the relevant stakeholders shall be evaluated with regard to:

- Satisfaction with the content, methods, and examination procedures
 - Appropriateness of the graduates' **knowledge, attitudes, and performance** for their future professional roles
 - Comparison of the objectives achieved by learners with the intended educational objectives
-

FINAL EVALUATION OF THE PROGRAM

The educational program shall undergo final evaluation under the following conditions:

- Major technological changes that establish the need for revision of the program
 - The level of graduates' satisfaction with the program
 - The level of faculty members' satisfaction with the program
 - The level of satisfaction of health-system managers with the outcomes of the program
 - The extent to which health needs have been addressed and health problems have been resolved by graduates of the program, according to the evaluators
 - The quality and quantity of intellectual and research outputs produced by graduates of the program, according to the evaluators
-

METHODS OF PROGRAM EVALUATION

The methods for evaluating the program include:

- **Surveying the faculty members** involved in the program, as well as residents/learners and graduates, using questionnaires that have been reviewed and revised in advance.
- Using questionnaires available through the **Evaluation and Accreditation Unit of the Secretariat**.

Responsible Body for Program Evaluation

The body responsible for evaluating the program is the **Council for the Expansion of Universities of Medical Sciences**, in cooperation with:

- The committee responsible for developing or revising the program
 - Other educational secretariats
 - Other faculty members
-

PROGRAM REVISION PROCESS

The stages of revision of this program are as follows:

1. Collection of information obtained from:
 - Surveys
 - Comparative studies
 - Field studies
 - Suggestions and opinions of experts
2. Requesting the Secretariat to establish a **Program Revision Committee**.
3. Presenting the collected information to the Program Revision Committee.
4. Revising the sections of the program that require modification and submitting the draft revised educational program to the **Secretariat of the Supreme Council for Medical Sciences Planning**.

AREAS IDENTIFIED AS REQUIRING REVISION

Based on surveys conducted among nursing and midwifery faculties offering the **Critical Care Nursing** program, the curriculum required revision in the following areas:

1. Insufficient Attention to the Clinical Dimensions of the Field

- Lack of proportionality between the program content and the expected **professional roles, duties, and outcomes** of graduates
- Failure to adequately define the expected **practical competencies**
- Failure to specify the **course outlines, objectives, and expected skills** of clinical-practicum units in the course specifications
- Failure to allocate **clinical internship credits**

2. Biomedical Approach to the Field

- Failure to consider the use of a **nursing-care model and theory** for providing nursing care
- Insufficient attention to **holistic care**

3. Inadequate Coverage of the Required Content

- Inadequate attention to **patient and family education**
 - Inadequate attention to **law, ethics, and professional relationships** in intensive-care units
 - Repetition of some topics
 - Lack of coherence and integration among topics; for example, monitoring and complications of each body system had been presented separately in different courses
 - Outdated references and failure to provide **specific references for each course**
-

PROGRAM EVALUATION — CONTINUATION

The following issue was also identified as requiring revision:

4. Failure to Address How the Educational Program Should Be Evaluated

The previous program did not adequately specify:

- Conditions for the **final evaluation of the program**
 - The body responsible for **program evaluation**
 - The **program revision process**
-

CHAPTER FIVE

EDUCATIONAL PROGRAM EVALUATION

The preceding sections describe the mechanisms, criteria, responsible authorities, and procedures for formative and summative evaluation and for revision of the Critical Care Nursing educational program.

APPENDICES

APPENDIX 1

PATIENT'S BILL OF RIGHTS IN IRAN

1. The Right to Receive Appropriate Health Services

Receiving appropriate health services is a **patient's right**.

1.1 Provision of Health Services Shall:

1. Be worthy of the dignity and status of the human being and be provided with respect for the patient's values, cultural beliefs, and religious beliefs.
2. Be based on:
 - Honesty
 - Fairness
 - Courtesy
 - Kindness
3. Be provided without any discrimination, including discrimination based on:
 - Ethnicity
 - Culture
 - Religion
 - Type of disease
 - Gender
4. Be based on the most up-to-date scientific knowledge.
5. Be based on the principle of **prioritizing the patient's best interests**.
6. In the distribution of health resources, be based on **justice and patients' treatment priorities**.
7. Be based on coordination among all components of care, including:
 - Prevention
 - Diagnosis
 - Treatment
 - Rehabilitation
8. Be accompanied by the provision of all basic and necessary welfare facilities and be free from imposing unnecessary pain, suffering, or limitations.
9. Pay special attention to the rights of vulnerable groups in society, including:

- Children
 - Pregnant women
 - Older adults
 - Patients with mental disorders
 - Prisoners
 - Persons with mental or physical disabilities
 - Persons without guardians or caregivers
10. Be provided in the shortest possible time and with respect for the patient's time.
 11. Take into consideration variables such as the **language, age, and gender** of service recipients.
 12. In necessary and emergency care, services shall be provided **regardless of the patient's ability to pay**. In non-emergency (**elective**) cases, services shall be provided according to defined regulations.
 13. In necessary and emergency care, if appropriate services cannot be provided, after the necessary emergency services and explanations have been provided, arrangements shall be made to transfer the patient to an appropriately equipped facility.
 14. At the end of life, when the disease is irreversible and the patient's death is imminent, the objective shall be to maintain the patient's **comfort**. Comfort means reducing the patient's pain and suffering and paying attention to the patient's psychological, social, spiritual, and emotional needs, as well as those of the family during the dying process. A dying patient has the right to be accompanied during the final moments of life by a person of his or her choice.
-

2. The Right to Receive Sufficient and Appropriate Information

Information shall be provided to the patient in an appropriate manner and in sufficient quantity.

2.1 The Information Provided to the Patient Shall Include:

1. The provisions of the **Patient's Bill of Rights** at the time of admission.
 2. The foreseeable regulations and costs of the hospital, including:
 - Treatment services
 - Non-treatment services
 - Insurance regulations
 - Available support systems

at the time of admission.
 3. The **name, responsibilities, and professional rank** of the members of the medical team responsible for providing care, including:
 - Physician
 - Nurse
 - Student

as well as their professional relationships with one another.
 4. Diagnostic and therapeutic methods, including:
 - The advantages and disadvantages of each method
 - Possible complications
 - Diagnosis of the disease
 - Prognosis
 - Complications
 - All information that may influence the patient's decision-making process.
 5. How to access the attending physician and the principal members of the medical team during treatment.
 6. All interventions and procedures that have a **research nature**.
 7. Necessary education required for continuation of treatment.
-

2.2 The Method of Providing Information Shall Be as Follows

1. Information shall be provided at an appropriate time and in accordance with the patient's condition, including:

- Anxiety
- Pain
- Individual characteristics
- Language
- Education
- Ability to understand

except when:

- Delay in initiating treatment due to providing the above information would cause harm to the patient. In such cases, the information shall be provided at the earliest appropriate time after the necessary intervention has been performed.
 - The patient, despite being informed of the right to receive information, refuses to receive such information. In this case, the patient's wishes shall be respected unless lack of information places the patient or others at serious risk.
2. The patient may have access to **all information recorded in his or her medical record**, receive a copy of it, and request correction of errors contained therein.

3. The Right to Free Choice and Decision-Making

The patient's right to freely choose and make decisions regarding the receipt of health services shall be respected.

3.1 The Scope of Choice and Decision-Making Includes:

1. Choosing the **attending physician** and the health-service provider within the applicable regulations.
2. Choosing and consulting a **second physician** as a consultant.
3. Participating or not participating in any research, with the assurance that the patient's decision will not affect the continuation of his or her access to health services.
4. Accepting or refusing proposed treatments after being informed of the possible consequences of accepting or refusing them, except in cases of:
 - Suicide attempts or suicidal situations
 - Situations in which refusal of treatment places another person at serious risk
5. The patient's previously expressed wishes concerning future medical interventions, expressed while the patient has decision-making capacity, shall be recorded and, when the patient loses decision-making capacity, shall be considered as guidance for medical decisions by healthcare providers and the patient's substitute decision-maker, in accordance with legal requirements.

3.2 Conditions for Choice and Decision-Making

1. The patient's choice and decision-making must be **free and informed**, based on receiving sufficient and comprehensive information as described in Section 2.
 2. After the information has been provided, sufficient time shall be given to the patient to make an informed decision and choice.
-

4. The Right to Privacy and Confidentiality

The provision of health services shall be based on respect for the patient's **privacy** and observance of the principle of **confidentiality**.

1. Confidentiality concerning all information related to the patient is mandatory unless the law provides an exception.

2. At all stages of care, including diagnostic and therapeutic procedures, the patient's privacy shall be respected. All necessary facilities shall be provided to ensure the patient's privacy.
3. Only the following persons may have access to patient information:
 - The patient
 - The treatment team
 - Persons authorized by the patient
 - Persons legally authorized to have access
4. The patient has the right, during diagnostic procedures, including examinations, to be accompanied by a **trusted person of his or her choice**.

Accompanying a child by one of the parents throughout all stages of treatment is the child's right unless doing so conflicts with medical necessities.

5. The Right to Access an Effective Complaint-Handling System

1. Every patient has the right, if he or she alleges that a right established in this Bill of Rights has been violated, to submit a complaint to the competent authorities **without compromising the quality of health services received**.
 2. Patients have the right to be informed about the **process of handling their complaint and its outcome**.
-

PATIENT'S BILL OF RIGHTS IN IRAN

Continuation

3.5

Any losses resulting from errors made by healthcare providers in the provision of health services shall be compensated in accordance with the applicable regulations **as soon as possible**.

3.6

In implementing the provisions of this Charter, if a patient, for any reason, lacks the capacity to make decisions, the exercise of all the patient's rights stated in this Charter shall be the responsibility of the patient's **legally appointed substitute decision-maker**.

However, if the substitute decision-maker acts contrary to the physician's opinion, the physician may request a review of the matter through the relevant authorities.

If a patient lacks sufficient decision-making capacity but is nevertheless able to make a reasonable decision regarding part of the treatment process, that decision shall be respected.

APPENDIX 2

EXECUTIVE REGULATIONS ON DRESS CODE AND PROFESSIONAL ETHICS FOR STUDENTS IN CLINICAL AND LABORATORY ENVIRONMENTS

The manner of dress and behavior of all personnel working in the medical sciences must be such that, while maintaining **professional dignity**, it provides an appropriate environment for effective professional communication with:

- Patients

- Patients' companions
- Colleagues
- Other individuals in educational environments

Therefore, compliance with the following regulations is mandatory for all individuals who are studying or providing services in **clinical and laboratory educational environments**.

CHAPTER ONE

DRESS AND DRESS CODE

Students' clothing when entering educational environments, particularly clinical and laboratory environments, shall be **uniform** and shall have the following characteristics:

- A **white coat** of appropriate length, loose-fitting, with long sleeves.
- The white coat shall bear the logo of the relevant **University of Medical Sciences and Health Services**.
- All buttons of the white coat shall remain completely fastened throughout the student's presence in educational environments.
- Wearing a valid **photo identification card**, containing the student's first name, last name, student number, faculty name, and field of study, on the left chest area of the clothing throughout the student's presence in educational environments is mandatory.
- Female students shall appropriately cover the entire head, neck, area below the neck, and hair.
- Trousers shall be of conventional length, simple, and loose-fitting. Torn jeans and similar clothing that are inconsistent with professional standards are prohibited.
- Wearing simple socks that completely cover the feet and lower legs is mandatory.
- Wearing mesh socks or socks with decorative elements is prohibited.
- Shoes shall be comfortable and appropriate and shall not make noise while walking.

- The white coat, clothing, and shoes shall be comfortable, clean, neat, and conventional and shall not have excessively bright, inappropriate, or offensive colors.
 - Using symbols unrelated to the medical profession and attaching them to the white coat, trousers, or shoes is prohibited.
 - Wearing or displaying any **ring, bracelet, necklace, or earring**, except a wedding ring, in educational environments is prohibited.
 - Wearing slippers and sandals in educational environments is prohibited, except in the **operating room and delivery room**.
-

CHAPTER TWO

PERSONAL HYGIENE AND MAKEUP STANDARDS IN EDUCATIONAL ENVIRONMENTS

1. Members of the medical profession are role models in cleanliness and personal hygiene. Therefore, maintaining a clean appearance and personal hygiene in medical-sciences educational environments is essential.
 2. Fingernails must be **short and clean**. Nail polish and nail stickers of any kind are prohibited. Artificial and long nails increase the risk of infection transmission and the possibility of injury to other people and medical equipment.
 3. Hair and facial styling that is unconventional and inconsistent with the dignity of the medical profession is prohibited.
 4. Displaying any form of makeup or cosmetic alteration in the form of **tattoos**, or using rings or studs in the nose or any part of the hands or face, is prohibited.
 5. The use of cologne or perfumes with strong or allergenic odors in educational environments is prohibited.
-

CHAPTER THREE

STUDENT BEHAVIORAL STANDARDS IN MEDICAL EDUCATIONAL ENVIRONMENTS

1. Observance of professional ethics, humility, and modesty when interacting with:

- Patients
- Patients' companions
- Professors
- Students
- Staff

is mandatory.

2. Conversation in educational environments shall be conducted **quietly and courteously**. Creating loud noise or using words that are inconsistent with the dignity of the medical profession is prohibited.

3. **Smoking and tobacco use** are prohibited throughout the period an individual is present in educational environments.

4. Chewing gum and similar activities are prohibited in:

- Laboratories
- Conference halls
- Patient rounds
- In the presence of professors, staff, and patients

5. During classes, laboratory sessions, and patient rounds, mobile phones must be **turned off**. At other times, their use shall be limited to essential needs.

6. Any inappropriate discussion or joking in public areas such as:

- Elevators
- Cafeterias
- Restaurants

is prohibited.

CHAPTER FOUR

MONITORING IMPLEMENTATION AND FOLLOW-UP OF VIOLATIONS

1. Supervision of compliance with the principles of this regulation in teaching hospitals and other clinical medical-education environments shall be the responsibility of:
 - The hospital's Vice President for Education
 - The head of the department
 - The head of the ward/unit
 - Educational and student-affairs experts of the relevant unit
 2. Individuals who fail to comply with professional ethics and the principles of this regulation shall first receive a **warning**. If they persist in the violation, they shall be referred to the **Student Disciplinary Council**.
-

APPENDIX 3

REGULATIONS FOR WORKING WITH LABORATORY ANIMALS

Animals play a very important role in the advancement and expansion of medical-science research. The ethical principles and teachings of divine religions require respect for their rights. Therefore, researchers conducting studies on animals are required to observe the relevant ethical principles.

Accordingly, based on the resolutions of the **Ethics Committee**, it is mandatory to state the **Ethics Committee approval code** in research articles submitted to scientific journals.

The following principles and regulations concerning work with laboratory animals shall be observed:

FACILITIES AND BUILDINGS FOR ANIMAL HOUSING

- Appropriate facilities and buildings necessary for maintaining animal health shall be available.
- Before animals are introduced, appropriate housing conditions shall be provided according to their **species and type**.
- Cages, walls, floors, and other structural components shall be **washable and disinfectable**.
- In enclosed spaces, appropriate conditions shall be provided with regard to:
 - Light
 - Oxygen
 - Humidity
 - Temperature
- If animals are kept outdoors, they must have an appropriate **shelter**.
- The space and cage shall be appropriate for the animal species.
- Cages shall provide sufficient space for the animal to **rest**.
- During transportation, appropriate conditions regarding temperature, light, and breathable air shall be maintained from the point of purchase/collection until the animal reaches its permanent location.
- The vehicle used for animal transportation shall have appropriate conditions and the necessary authorization.
- The animal's health shall be checked by the receiving person.
- **Quarantine** of newly arrived animals shall be observed.

- Animals shall not be housed near their natural predators.
 - Cages shall remain within the field of vision of the person responsible for animal care.
 - Animals shall not be able to escape from their cages.
 - Excessive noises that may disturb animals shall be eliminated from the environment.
 - The possibility of injury or trauma to animals during handling or movement shall be prevented.
 - Bedding and resting areas shall be cleaned regularly.
 - Animal-housing areas shall be continuously washed and disinfected.
 - Appropriate materials and equipment shall be used for cleaning the environment and sterilizing equipment.
 - Food and drinking water provided to animals shall be **appropriate and hygienic**.
 - Ventilation and waste removal shall be carried out continuously in a manner that prevents:
 - Unpleasant odors
 - Allergic reactions
 - Transmission of disease to personnel
 - Transmission of disease among laboratory animals
 - Appropriate space shall be available for disposal of animal bodies and carcasses.
 - Adequate, comfortable, and hygienic space shall be available for:
 - Administrative staff
 - Technicians
 - Animal-care personnel
 - Sick animals or animals with special conditions, such as **pregnancy or lactation**, shall not be used in research.
 - Before any research procedure, sufficient time shall be provided for the animal to **adapt to the environment and personnel**.
 - Personnel must have received appropriate **training in working with animals**.
-

CONDITIONS FOR CONDUCTING ANIMAL RESEARCH

The following conditions shall be observed when conducting research involving animals:

- The **specific animal species** selected for the experiment and research shall be appropriate for the study.
 - The **minimum number of animals necessary** to achieve valid statistical and scientific results shall be used.
 - There must be no possibility of using an appropriate **alternative method** instead of using animals.
 - At different stages of the research and during the method of euthanasia after the research, the **minimum possible suffering and distress** shall be used.
 - Throughout the entire study period, the applicable **codes and regulations governing work with laboratory animals** shall be observed.
 - The results of such research should ultimately contribute to the **improvement of community health**.
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