References

✓ **STUDENT RESOURCE MATERIALS**

1. Internally prepared and produced Study Units 1, 2, 3, 4 and 5.
2. Corresponding homework and reading assignments for Study Units (1-5), inclusive.

✓ **Textbook(s) and References***

1. Wilkins, Krider & Sheldon. (2000). Clinical Assessment in Respiratory Care. 4th Ed., Mosby-Year book, Inc. ISBN: 0-323-00909-3
2. Kacmarek, R. M. & Pierson, D. J. Foundations of Respiratory Care. ISBN: 0-443-08509-9
3. *. Wilkins, R. L., Stoller, J. K. and Scanlan, C. L. (2021) Egan's Fundamentals of Respiratory Care, 12th Ed., ISBN: 0-323-01813-0

Teaching Methods –common to all Courses

- Brain storming
- Group discussion
- Plenary presentation by participants
- Mini-lecture by facilitators
- Manual and computer based hand on exercises

Summative Assessment

Progressive assessments of group and individual reports and exercises

(40%) Written Examinations (60%)

- Clinical practice
- Portfolio based learning

Teaching and Learning Materials

- EGAN'S Fundamentals of Respiratory Care, 12th Edn, Wilkins, Stoller, Kacmarek
- Workbook EGAN'S Fundamentals of Respiratory Care, 9th edn, Stephen F. Wehrman
- Foundations of Respiratory Care, Wyka, Mathews, Clark
- Respiratory Care, *Principles & Practices*, Dean R. Hess, etal

Assessment Methods

Formative Assessment

- Drills and practical test
- Structured feedback report
- Cases and scenarios
- Logbook
- Portfolio

Summative Assessment

- Progressive assessments of group and individual reports and exercises 30%
- OSCE (20%)
- Structured and Objective Written Exam (50%)

Course Outline

1. BASIC RESPIRATORY CARE 2. History of RC and its development around the world and Arabic and locally .
a. Airway Management
i. Suctioning
ii. Establishing artificial airway
iii. Airway maintenance
iv. Intubation and Tracheostomy
v. Extubating or decannulation

Course Title: Introduction to Respiratory Care

Course Code: RCP-510

Credit **hour:** 3

Course Description:

This course provides an introduction to respiratory care clinical skills, including vital signs, chest assessment, infection control, aerosolized medication delivery, oxygen therapy, hyperinflation therapy, and airway clearance. This course prepares the student for direct patient care to be performed in more advanced courses. Direct patient care is performed under close supervision.

Learning Objectives

To meet the above course objective, the student will be able to:

- Describe the history of respiratory care and its recent developments
- Describe and develop skill on how to perform endotracheal and nasotracheal intubation and suctioning
- Describe the rational and methods of performing tracheostomy
- Describe and develop skill on how to maintain artificial airways
- Describe how to assist a physician in setting up and performing bronchoscopy
- Describe the indications, settings and techniques of doing CPR
- Describe how to perform defibrillation and AEDs
- Describe how to monitor patients before cardiac arrest, during CPR, and after resuscitation
- Identify the indications, reasoning, contraindications and hazards that pertain to humidity and bland aerosol therapy
- Describe how to monitor, manage and troubleshoot problems arising from humidification and aerosol therapy systems
- Describe the indications, techniques, and management of medical gas therapy with a special emphasis on oxygen therapy
- Describe the indications and develop skill on airway clearance and chest expansion therapy techniques
- Discuss legal and ethical issues arising from respiratory Care

Teaching and Learning Methods

- Case study
- Simulated practice

vi. Bronchoscopy
b. Emergency Cardiovascular life support:
i. Basic Life support
ii. Advanced Emergency cardiovascular life support
c. Humidity and Bland Aerosol Therapy
d. Storage and Delivery of Medical gases
e. Chest Physiotherapy
i. Lung expansion therapy
ii. Airway clearance therapy
f. Legal and Ethical Issues in Respiratory Care

First Year - Second Semester

Year / Semester	Course code	Course Title / Description	Theory Hrs / Week	Practice Hrs/ week	Credit Hours
First Year - 2nd Semester	RCP-516	Respiratory Care Equipment & Techniques	3	0	3
	RCP-517	Pulmonary Diseases	4	-	4
	RCP-518	Respiratory Critical Care	4	0	4
	MSC -502	Epidemiology	2	-	2
	RCP-519	Mechanical Ventilation	4	-	4
	RCP- 520	Clinical Practice I	-	18	6
	Semester Total		17	18	23

Course Title: Respiratory Care Equipment & Techniques

Course Code: RCP-516

Credit hour: 3

Course Description:

This course provides students with the opportunity to gain hands-on experience with respiratory care equipment. Students select, assemble, and check equipment for proper function, operation and cleanliness. Equipment malfunctions and actions to correct malfunctions will also be covered. Equipment will include oxygen delivery devices, humidifiers, aerosol generators, pressure ventilators, gas delivery, metering and analyzing devices, percussors, vibrators, environmental devices, manometers, gauges, and vacuum systems. Maintenance of artificial airways, fiberoptic bronchoscopy, thoracentesis, chest tube maintenance, and arterial blood gas sampling will also be discussed. Basic and advanced life support will be covered to include cardiopulmonary resuscitation, artificial ventilation and circulation, endotracheal intubation, airway care, recognition and treatment of arrhythmias, and cardiovascular pharmacology. Related equipment will also be reviewed to include manual resuscitators, artificial airways, defibrillators and cardiac monitors.

Learning Objectives:

To meet the above Course objective, the student will be able to:

- Identify medical devices and instruments a respiratory therapist operates
- Describe the indications, initiations, and the follow-up parameters of each of the respiratory therapy instrumentations
- Describe and understand the basic operating principles of the common respiratory medical devices including mechanical ventilators
- Describe the applications of each of the RC instrumentations
- Know how to follow-up the patient parameters on the instrumentations including describing the normal and abnormal values and link with the patient conditions for a deviating parameter of a given RC medical device
- Know how to troubleshoot the commonly used RC instruments and devices

Prerequisite: GRT201 & GRTN203

Teaching and Learning Methods

- Case study
- Simulated practice
- Clinical practice
- Portfolio based learning

Teaching and Learning Materials

- Instruments Manufacturers' User/operators Manuals
- EGAN's Fundamentals of Respiratory Care, 9th Edn., Wilkins, Stoller, Kacmarek
- Clinical Application of Blood gases, Shapiro, etal
- Pulmonary Function Testing, Gregg L. Ruppel
- Foundations of Respiratory Care, Wyka, Mathews, Clark

Assessment Methods

Formative Assessment

- Drills and practical test
- Structured feedback report
- Cases and scenarios
- Logbook
- Portfolio

Summative

Assessment

Summative

Assessment

- Progressive assessments, quiz, group and individual reports and exercises (10%)
- OSCE (20%)
- Exam on Simulators and Instruments (30%)
- Structured and Objective Written Exam (40%)

Course Outline

RESPIRATORY CARE INSTRUMENTATION

1) Concepts of design, function, and operation of basic respiratory care equipment: 48 HR
o Oxygen cylinders,
o Gas regulators and flowmeters
o Oxygen analyzers,
o Oximeters,
o Oxygen adjuncts,

o Humidifiers,
o Nebulizers,
o Airways,
o Capnometers,
o Defibrillators,
o CPAP and BiPAP machines
o Anesthesia machines and
o Pressure cycled ventilators

2) Basic principles of Mechanical Ventilation
a. Respiratory Failure and the need for ventilatory support
b. Mechanical Ventilation
c. Ventilatory Parameters
d. Physiology of ventilatory Support
e. Non-Invasive Mechanical Ventilation: CPAP &BiPAP
i. Indications
ii. Initiation of NIV
iii. Follow-up of pts on NIV
iv. Weaning of pts from NIV
f. Invasive Mechanical ventilation
i. Indications
ii. Initiation of MV
iii. Follow-up of Patients on MV
iv. Weaning of pts from MV

Course Title: Pulmonary Diseases

Course Code: RCP-517

Credit Hour: 4

Course Description: This course is designed to equip RT students apply knowledge and skills to the assessment, treatment, and pathophysiology of respiratory diseases, this course focuses on the signs, symptoms, etiology, pathophysiology, diagnosis and treatment of selected respiratory and related diseases.

Course Objective

The student will be able to review and understand the pathophysiology of cardiopulmonary diseases and critically apply the knowledge gained from this module during respiratory care.

Learning Objectives

To meet the above module objective, the student should be able to the epidemiology, etiology, pathogenesis, clinical manifestation, assessment, investigations and management and prognosis of the cardiopulmonary diseases listed in the course outline below.

Teaching and Learning Methods

- Classroom teaching
- Case study
- Simulated practice
- Clinical practice

Teaching and Learning Materials

- Foundations of Respiratory Care, Wyka, Mathews, Clark
- EGAN'S Fundamentals of Respiratory Care, 7th Edn, Willkins, Stoller, Kacmarek
- Respiratory Care, Principles and Practices
- Comprehensive Perinatal and Pediatrics Respiratory Care, Kent Whitaker

Assessment Methods

Formative Assessment

- Practical test
- Structured feedback report
- Cases and scenarios
- Logbook

- Portfolio

Summative Assessment

- Progressive/continuous assessment (seminar, project work) (20%)
- Case presentations (10%)
- Written Exam (70%

Module Schedule

1. REVIEW OF PULMONARY DISEASES
a. Respiratory Clinical Assessment and Monitoring 4HR
b. Respiratory Failure in General 2HR
c. COMMON PATHOLOGIES OF RESPIRATORY SYSTEM -36HR
i. Pulmonary Infections
ii. Tracheobronchial tree and Lung Injury
iii. Neuromuscular Diseases and Chest Injury
iv. Drug overdose
v. Obstructive Lung diseases (COPD, Asthma)
vi. Lung Parenchymal diseases
vii. Acute Lung Injury, Pulmonary edema, and multiple organ failure, ARDS
viii. Interstitial lung diseases
ix. Pulmonary Vascular diseases
x. Pleural Diseases
xi. Lung Cancer
xii. Sleep related respiratory diseases
xiii. Neonatal and Pediatrics respiratory disorders
d. Occupation and Environment – Respiratory Care perspective 2HR

Course Title: Respiratory Critical Care

Course Code: RCP-518

Credit Hour: 4

Course Description: This course is designed to equip RT students apply knowledge and skills to the diagnostic and therapeutic procedures in the field of Respiratory Care. The emphasis is placed on the management of mechanical ventilation and critical respiratory conditions.

Course Objective

The student will be able to :

1.Describe how to manage airway and cardiac arrest patients
2. Describe type of shock and how to manage it
3. Know recent MV techniques ex. ECMO, ILV and liquid ventilation.
4.Discuss how to rapid interfere with patient in massive hemoptysis
5.Interpret the concept of NIPPV
6. Demonstrate about fever and antibiotics in ICU

Learning Objectives

To meet the above module objective, the student should be able to the epidemiology, etiology, pathogenesis, clinical manifestation, assessment, investigations and management and prognosis of the cardiopulmonary diseases listed in the course outline below.

Teaching and Learning Methods

- Classroom teaching
- Case study
- Simulated practice
- Clinical practice

Teaching and Learning Materials

- Respiratory Critical Care, 1st edition David W. Chang , 2021.
- EGAN'S Fundamentals of Respiratory Care, 12th Edn, Willkins, Stoller, Kacmarek
- Respiratory Care In Non Invasive Mechanical Ventilatory Support (Principles And Practice) Antonio M. Esquinas, MD ,Mohammed Alahmari, 2021.

Assessment Methods

Formative Assessment

- Practical test.
- Structured feedback report.

- Cases and scenarios
- Logbook
- Portfolio

Summative Assessment

- Progressive/continuous assessment (seminar, project work) (20%)
- Case presentations (10%)
- Written Exam (70%

Module Schedule

1. Respiratory Critical Care:	
a. Introduction Respiratory Critical Care	4HRs
b. Basic concept of NIV	8HRs
c. Cardiac arrest	2HRs
d. Fever in ICU	2HRs
e. Antibiotics in ICU	6HRs
f. Shock	6HRs
g. Hemoptysis	2HRs
h. Airway maintenance	6HRs
i. Difficult intubation	2 HRs
j. ECMO	2 HRs
k. ILV	2HRS
l. Liquid ventilation	2HR
m. Pharmacotherapy in Critical Care	2 hrs
n. Medical Critical Care Issues	6hrs
o. Traumatic Critical Care Issues	6hrs
p. Critical Care Guidelines and Bundles	6hrs

Mechanical Ventilation

Course Title: Epidemiology

Course Code: RCP-517

Credit hours - 2

Course Description: Epidemiology provides students with a range of research tools, which can be used to obtain the information required for prevention, service provision, and the evaluation of health care. It is the basic tool of public health for controlling and prevention of diseases. It provides practical guidance and skills in approaches for understanding the health of population. This course provides the approach, concepts and perspectives of epidemiology for participants in a broad range of public health and related disciplines. The course is designed for master in public health

Course Objectives

Up on Complication of this course, the students should be able to:

- Describe the scope, purposes and achievements of epidemiology in health services;
- Discuss, apply, and interpret basic epidemiology concepts and measures of disease occurrence and its effect in population;
- Identify, discuss and illustrate the basic principles, objectives, and elements of public health surveillance;
- Assess the relevance and understand the limitations of various epidemiological research designs for studying diseases causation, association between risk factors or exposure in populations and rates of diseases occurrence and death;
- Describe standard approaches to investigations of disease outbreak
- Identify the major sources of errors in epidemiological studies and suggest strategies to reduce these errors;
- Evaluate epidemiological evidence by applying criteria for causal inference to information about an association between a population exposure and health outcome.
- Describe their role in screening program for disease control and prevention
- Use epidemiological methods in evaluating the effectiveness of public health intervention programs;
- Appreciate some of the complexities in applying scientific evidence on health and disease to the making of public policy.

Course Contents

Unit I: Introduction to epidemiology

Unit II: Communication diseases

epidemiology Unit III: Overview of

epidemiology studies Unit IV: Measurement

in epidemiology

Unit V: Epidemiologic design

strategies Unit VI: Evaluation of

Evidence

Unit VII: Presentation of epidemiologic

information Unit VIII: Outbreak investigation &

management Unit IX: PTO Epidemiological

surveillance

Unit X Screening

Unit XI: Ethics of epidemiologic Research

Assessment

Progressive assessments of group and individual reports and exercises

40% Written Examinations 60%

Course Title: Mechanical Ventilation

Course Code: RCP-519

Credit hour: 5

Course Description:

A comprehensive study of advanced equipment and technology especially mechanical ventilators utilized in the critical care, homecare, pulmonary rehabilitation and blood gas lab-settings.
Lectures and class activities will detail hardware for hemodynamic monitoring, supplemental oxygen administration, noninvasive monitoring, blood gas measurement, quality control and assurance and mechanical ventilator concepts.

Course Objective

The student will be able to study the principles, approaches and applications of mechanical ventilators and other advanced medical devices used in critical care units.

Learning Objectives

To meet the above Course objective, the student will be able to:

- Define and describe respiratory failure and the need for ventilatory support
- Critically understand how ventilators work, the waveforms and the operator interface
- Describe the physiology of mechanical ventilator support
- Describe the approaches and reasoning of critical patient evaluation for and on mechanical ventilatory support
- Describe and demonstrate ventilator initiation, adjustment, monitoring, and discontinuation of ventilatory support
- Describe and demonstrate the proper patient family information for a patient on mechanical ventilation
- Develop hospital contextual protocols on ventilator support and related issues in a given hospital ICU
- Discuss ventilator support modes and maneuvers for specific critical patient conditions

Teaching and Learning Methods

- Case study
- Simulated practice
- Clinical practice
- Portfolio based learning
- Seminar

- Journal review

Teaching and Learning Materials

- EGAN'S Fundamentals of Respiratory Care, 12th Edn, Wilkins, Stoller, Kacmarek
- Workbook, EGAN'S Fundamentals of Respiratory Care, 12th Edn, Stephen F.Wehrman
- Guide to Mechanical Ventilation and Intensive Respiratory Care, Lynelle N.B. Pierce
- Mechanical Ventilation, *Physiological & Clinical Applications*, 7th Ed, Susan P. Pilbeam
- Perinatal & Pediatrics respiratory Care, 5th Edn, Walsh, etal

Assessment Methods

Formative Assessment

- Drills and practical test
- Structured feedback report
- Cases and scenarios
- Logbook
- Portfolio

Summative Assessment

- Progressive/continuous assessment (seminar, Quiz, practice observation) (20%)
- OSCE (20%)
- Objective Structured Written Exam (40%)
- Rating of guided clinical practice (360 global rating, logbook, portfolio) (20%)

Course Outline

1) ACUTE AND CRITICAL RESPIRATORY CARE --- 80 Hrs Total
a. Respiratory Failure and the Need for respiratory Support 14H
i. Hypoxemic and Hypercapnic respiratory Failures
ii. Chronic and Acute Respiratory Failure
iii. Assessment of Respiratory Failure
iv. C1hoosing a support strategy
b. Mechanical ventilators 14HR
i. How ventilator s work

ii. Waveforms
iii. Operator Interface
c. Physiology of ventilator support 14HR
i. Pressure and Pressure gradients
ii. Effects of mechanical ventilation on ventilation and oxygenation
iii. Effects of positive pressure and ventilators mode on lung mechanics and other body systems
d. Initiation and adjusting invasive and non-invasive ventilation 10HR
e. Monitoring of a patient in ICU: Principles, respiratory, CVS, renal, global monitoring indices, troubleshooting 14HR
f. Discontinuing ventilator support 8HR
g. Disease specific Ventilator management approaches 6HR

Course title: Clinical Practicum I

Course Code: RCP-520

Credit Hours: 4

Duration: 16 weeks

Description: Clinical Practicum I includes clinical practicum in medicine, pulmonary and critical care, under the direct supervision of a practicing supervising, pulmonologist, or other physician pre-approved, with emphases on both in-patient and outpatient assessment, diagnosis, management, practice, and procedures. Pre-requisite-prior approval of the program director and an approved signed preceptor agreement on file.

Students will observe and achieve competencies related to respiratory procedures in general medical/surgical floors and adult intensive care units. Introduces students to clinical respiratory care procedures. Topics include: introduction to the clinical affiliate, patient assessment, medical gas therapy, aerosol therapy, incentive spirometry, positive pressure breathing, chest physiotherapy, and airway care.

Prerequisites: Satisfactory completion of first semester of course work.

Teaching and learning methods

- Clinical Attachment
- Demonstration
- Guided practice
- Group discussion
- Seminar
- Individual/group tutorial
- Case study
- Skill lab
- Bedside teaching
- Self-study
- Portfolio
- Clinical simulation
- Video show
- Inter-professional learning experience in the clinic practice

Teaching and learning materials

- EGAN's Fundamentals of Respiratory Care, 12th Edition x 10 pieces------ Text Book

- Wilkins Clinical Assessment in Respiratory Care, 7h Edition x 10 copies ----- Text Book
- Mechanical Ventilation: Physiological and Clinical Applications, 7th ed, Susan P. Pilbeam
- Foundations of Respiratory Care, Wyka, Mathews, Clark
- Comprehensive Perinatal and Pediatrics Respiratory Care, Kent Whitaker
- Clinical Application of Blood Gases, 5th Edn, Shapiro, etal
- Guide to Mechanical Ventilation and intensive Respiratory Care, Lynelle N.B. Pierce
- Principles of pharmacology for respiratory Care, 3rd Ed, Bills & Soderberg
- Rau's Respiratory Care pharmacology , 10th Ed, Douglas S. Gardenhire
- Cardiopulmonary Pharmacology for Respiratory Care, Jahangir Moini
- Respiratory Care Principles and Practice, Dean R. Hess, etal
- Ruppel's Manual of pulmonary Function Testing, 11th edition , Carl D. Mottram
- Respiratory Care Clinical Competency Lab Manual by Sandra T. Hinsiki, 1st Edition
- Respiratory Care Anatomy and Physiology, *Foundations for Clinical Practice*, Will Beachey

Methods of

assessment Formative

- Direct observation of performance
- Oral questioning
- Case study /Seminar
- 360 degree evaluation
- Review of portfolio, log book
- Journal review

Summative

- Direct observation of performance
- Review of content of portfolio
- 360-degree evaluation
- Objectively written exam
- Project/seminar report

Master the following clinical experiences but not limited to:

1. **Procedures to be performed**

- Advanced life support system
- Endotracheal intubation
- Positive Pressure Ventilation / Mechanical ventilation
- Arterial Blood gas sampling and interpretation
- ECG recording
- Spirometry/ PFT
- Sleep medicine/lab
- Use of defibrillator CPR

2. **Assist health care team during procedures**

- Bronchoscopy
- Chest tube insertion
- Tracheostomy

3. **Routine Activities during Clinical Attachments**

- Work as a respiratory therapist in general
- Specific bed side teaching related to respiratory tract illnesses
- Preparation of supplies and instruments
- Measures and interprets Pulse-oximetry, ETCo2, NIBP, IBP, etc
- Venous access, ABG collection monitoring
- Oxygen administration, suctioning respiratory therapy,
- Airway management
  - Application of oropharyngeal airway
  - Oxygen therapy
  - CPAP
  - Care of Tracheostomy
  - Endotracheal Intubation
  - Extubation, decannulation
- Care of chest drainage and nebulization
- Chest physiotherapy
- Monitoring of critically ill patients from a cardio-respiratory point of view

- Setting and follow up of patients on ventilators
- Thermoregulation management and control using hypothermic machines
- Pulmonary Rehabilitation
- Advanced life-saving activities (resuscitation, defibrillation, transport, etc)

4. **Students Assignments**

- Case Studies
- Case Presentations
- Observation reports
- Patient education demonstrations
- Project on a respiratory disease
- Drug Study

5. **Instructor Assignments**

- Prepare clinical rotation plan
- Prepare teaching plan for students
- Perform clinical evaluation of students/staff
- Management plan-designing
- Supervision techniques-writing unit report, performance appraisal, guidance, staff management, material management
- Maintenance of records and reports
- Student assignment evaluation and report

Total Hours Schedule for Practicum Courses (12 hrs per week x 16 weeks' x 1 semesters)

Learning Activity	Total HRs expected
ICUs (Adult, Pediatrics, Neonatal), CCUs, Recovery units, Emergency, Ambulances/transport	**151 hours**
Respiratory units/clinics, Operation Theaters, Endoscopy units, dialysis unit, general wards, etc	**41 hours**

N.B.:

- Clinical preceptors and senior instructors will accompany students in the practice area all the time
- Early in the morning there should be clinical round in ICU and in-patient wards
- Every day in the afternoon there will be debriefing session

- Every Friday afternoon: whole group discussion for case studies and presentation. Eg. Discussion of unusual cases, interesting cases...)

Second Year – First Semester

Year Semester	Couse code	Course Title / Description	Theory HRs /week	Practice HRs/ week	Credit Hours
2nd Year - First Semester	RCP-521	Neonatal and Pediatrics Respiratory Care	3	6	5
	MSC-503	Educational Methodology	2	-	2
	RCP-522	Advanced Procedures in Respiratory Care	3	6	5
	RCP-523	Clinical practice II	-	15	5
	MSC-504	Research Methodology & Project	2	-	2
	Semester Total		10	27	19

Course Title: Neonatal and pediatrics Respiratory Care

Course Code: RCP-521

Credit hour: 3

Course Description:

This is an in-depth study of neonatal utero development, fetal lung development, fetal circulation, and cardiovascular changes at birth. Neonatal respiratory emergencies, neonatal respiratory diseases and management, congenital defects, and respiratory care procedures specific to the neonate will be discussed. It gives a specific emphasis on mechanical ventilation management of the neonatal patient in the critical care environment. The course will expose the student to advanced therapeutics and mechanical ventilation strategies

Learning Objectives

To meet the above Course objective, the student will be able to:

- Describe the correct approach for assessment of newborn and infants
- Discuss the use of oxygen therapy, bronchial hygiene therapy, aerosol drug therapy, airway management and resuscitation approaches in the care of infants and children
- Discuss the use of CPAP and mechanical ventilation for neonates and infants
- List congenital abnormalities that a respiratory care is needed and their approaches
- Describe the correct approach to assessment of pediatrics patients for respiratory care
- Develop skill on infant resuscitation and CPAP therapy

Teaching and Learning Methods

- Case study
- Simulated practice
- Clinical practice
- Portfolio based learning

Teaching and Learning Materials

- Perinatal and Pediatrics Respiratory Care, 3rd Ed, Walsh, Czervinske, DiBlasi
- Comprehensive Perinatal & Pediatric Respiratory Care, 3rd Ed, Kent Whitaker
- Guide to Mechanical Ventilation & Intensive Respiratory Care, Lynelle N.B. Pierce

Assessment Methods

Formative Assessment

- Drills and practical test
- Structured feedback report
- Cases and scenarios
- Logbook
- Portfolio

Summative Assessment

- Progressive/continuous assessment (seminar, quiz, practice observation) (10%)
- Case presentations (10%)
- OSCE (20%)
- Rating of guided clinical practice (360 global rating, logbook, portfolio) (20%)
- Objective Structured Written Exam (40%)

Course Outline:
1) NEONATAL/PEDIATRICS RESPIRATORY CARE
a. Fetal Development and Common Congenital problems – 2hr
b. Perinatal and Infant, and pediatrics Pulmonary Disorders – 2hr
c. Respiratory assessment of Infant and Pediatrics patients – 4hr
d. Respiratory Care of the Neonatal and Pediatric patients - 6hr
e. Management of Ventilation and Oxygenation 8hr
i. Basic principles MV in infants
ii. Goals of MV in infants
iii. Ventilator settings for neonates
iv. Modes of ventilation
v. Complications of MV in infants and neonates
f. Continuous Positive Airway Pressure --6hr
i. Methods of Administration
ii. High flow nasal cannula
g. Neonates and Infant Resuscitation - 4hr

Course Title : Educational Methods

Course Code: MSC-503

Credit hour: 2

Course Description:

Aims	The Course aims to ensure the teacher is also a learner by enabling the participants to: • facilitate learning in both academic and practice settings; • develop and enhance their teaching skills in medical education. • gain an awareness and familiarity in enhanced technology in medical and health education • facilitate medical education bridging the boundaries between undergraduate and postgraduate provision, primary and secondary care, and other groups of health professionals;
Learning outcomes /Objectives	By the end of the Course the participants should have: • Critically reflected on their facilitative and other teaching styles and be able to analyze their professional interaction in one-to-one, small and large group contexts. • Demonstrated appropriate skills for facilitating learning and supporting an effective learning environment • Become more critically aware of developments nationally and internationally in medical education, including technology enhanced learning • Identified their own strengths and weaknesses as teachers, and have begun planning for further development as medical educators • Developed the habit of documenting and reflecting upon their professional practice as an educator

Content	• Positive and negative experiences of learning and teaching • Learning from current professional practice • Applying educational theories to current practice • Exploring current professional skills in the context of learning and teaching • Developing and managing the learning and teaching environment • Tools and techniques used in teaching • Micro-teaching to peers
	• Critical use and appraisal of feedback models
Teaching and learning strategies	• Experiential learning utilizing reflection, videos, simulation and structured exercises • Reflection on teaching • Small group discussions / impact groups • Lectures • One to one teaching • Online learning activities
Assessment tasks	• A Portfolio of 5000 words (max) to include evidence of participants' teaching assessments by self-evaluation, reflection and peer observation (60%). • Presentation / Demo (20%) • Written Exam (20%)
Brief description of Course content and/or aims	The Course will enable the participants to reflect upon their teaching and learning, and to explore and apply educational theories and new skills proactively in their current and future teaching and professional practice. An evidenced reflective portfolio based on a Personal Development Plan will support their progress in allied health science teaching. Inter- professional, peer and patient involvement in this teaching process will normally be evident.

Course title: Advanced Procedures in Respiratory care

Course Code: RCP-522

Credit Hour: 3

Course Description: Study and practice of invasive and noninvasive procedures and associated equipment—such as the management of artificial airways (e.g Tracheostomy), fiberoptic bronchoscopy, thoracentesis, chest tubes, hyperbaric therapy, polysomnography, arterial blood gas sampling, line placements, ACLS procedures, medications, IVs—related to the critical care patient. It emphasizes application to patient situations, assessment of care, and principles of equipment use above that of the entry-level respiratory care practitioner.

Course Outline

The Course contains the following topics but not limited to:

• Emergency Airway Cart	• ACLS Procedures
• Noninvasive Ventilation	• Laryngeal Mask Airway
• Oral Endotracheal Intubation	• Percutaneous Airways
• Mechanical Ventilation	• Bronchoscopy
• Thoracentesis	• Chest tube insertion and management
• Tube Thoracostomy	• Hyperbaric therapy
• Polysomnography	• Electrocardiography
• Venous Catheter Insertion	• Arterial Line Cannulation
• Pain Management in the ICU	• Glasgow Coma Score
• Lumbar Puncture	• Brain Death Examination
• Intracranial Pressure Monitoring	• Electroencephalography
• Cerebral Oximetry	• Heart-lung machine application

Teaching and Learning Methods

- Classroom teaches

- Case study
- Demonstration
- Simulated practice
- Clinical practice
- Portfolio based learning

Teaching and Learning Materials

Instruments in the Skill lab and ICUs

EGAN's Fundamentals of Respiratory Care, 10th Edition x 10 pieces------- Text Book

Wilkins Clinical Assessment in Respiratory Care, 7h Edition x 10 copies -------- Text Book

Respiratory Care Principles and Practice, Dean R. Hess, etal

Respiratory Care Clinical Competency Lab Manual by Sandra T. Hinsiki, 1st Edition

Formative Assessment

Drills and practical test
Structured feedback

report Cases and

scenarios Logbook

Portfolio

Summative Assessment

Progressive/continuous assessment (seminar, quiz, practice observation)

(10%) Case presentations (10%); OSCE (20%)

Rating of guided clinical practice (360 global rating, logbook, portfolio)

(10%) Objective Structured Written Exam (50%)

Course title: Clinical Practicum II

Course Code: RCP-523

Credit Hours: 4

Duration: 16 weeks

Description: Clinical Practicum II

This course provides students the opportunity to further develop both basic and advance skills required in the intensive care of the respiratory patient. Topics include: patient assessment, medical gas therapy, aerosol therapy, incentive spirometry, positive pressure breathing, chest physiotherapy, airway care using nasal, endotracheal, tracheal tubes, initiation of mechanical ventilation, patient stabilization and monitoring, evaluation of hemodynamic variables, bronchial hygiene, evaluation for weaning, endotracheal intubation, extubation, arterial line sampling, arterial puncture, blood gas analysis, and non-invasive monitoring. The students will also complete a pulmonary function, bronchoscopy observation, long-term care, and pediatric rotations. Pre-requisite-prior approval of the program director and an approved signed preceptor agreement on file.

Prerequisite: Satisfactory completion of first-year coursework.

Teaching and learning methods

- Clinical Attachment
- Demonstration
- Guided practice
- Group discussion
- Seminar
- Individual/group tutorial
- Case study
- Skill lab
- Bedside teaching
- Self-study
- Portfolio
- Clinical simulation
- Video show
- Inter-professional learning experience in the clinic practice

Teaching and learning materials

- EGAN's Fundamentals of Respiratory Care, 12th Edition x 10 pieces------ Text Book
- Wilkins Clinical Assessment in Respiratory Care, 7h Edition x 10 copies ----- Text Book
- Mechanical Ventilation: Physiological and Clinical Applications, 7th ed, Susan P. Pilbeam
- Foundations of Respiratory Care, Wyka, Mathews, Clark
- Comprehensive Perinatal and Pediatrics Respiratory Care, Kent Whitaker
- Clinical Application of Blood Gases, 5th Edn, Shapiro, etal
- Guide to Mechanical Ventilation and intensive Respiratory Care, Lynelle N.B. Pierce
- Principles of pharmacology for respiratory Care, 3rd Ed, Bills & Soderberg
- Rau's Respiratory Care pharmacology , 10th Ed, Douglas S. Gardenhire
- Cardiopulmonary Pharmacology for Respiratory Care, Jahangir Moini
- Respiratory Care Principles and Practice, Dean R. Hess, etal
- Ruppel's Manual of pulmonary Function Testing, 11th edition , Carl D. Mottram
- Respiratory Care Clinical Competency Lab Manual by Sandra T. Hinsiki, 1st Edition
- Respiratory Care Anatomy and Physiology, *Foundations for Clinical Practice*, Will Beachey

Methods of

assessment Formative

- Direct observation of performance
- Oral questioning
- Case study /Seminar
- 360 degree evaluation
- Review of portfolio, log book
- Journal review

Summative

- Direct observation of performance
- Review of content of portfolio
- 360 degree evaluation
- Objectively written exam

- Project/seminar report

Master the following clinical experiences but not limited to:

6. **Procedures to be performed**

- Advanced life support system
- Endotracheal intubation
- Positive Pressure Ventilation / Mechanical ventilation
- Arterial Blood gas sampling and interpretation
- ECG recording
- Spirometry/ PFT
- Sleep medicine/lab
- Use of defibrillator CPR

7. **Assist health care team during procedures**

- Bronchoscopy
- Chest tube insertion
- Tracheostomy

8. **Routine Activities during Clinical Attachments**

- Work as a respiratory therapist in general
- Specific bed side teaching related to respiratory tract illnesses
- Preparation of supplies and instruments
- Measures and interprets Pulse-oximetry, ETCo2, NIBP, IBP, etc
- Venous access, ABG collection monitoring
- Oxygen administration, suctioning respiratory therapy,
- Airway management
  - Application of oropharyngeal airway
  - Oxygen therapy
  - CPAP
  - Care of Tracheostomy
  - Endotracheal Intubation
  - Extubation, decannulation
- Care of chest drainage and nebulization
- Chest physiotherapy

- Monitoring of critically ill patients from a cardio-respiratory point of view
- Setting and follow up of patients on ventilators
- Thermoregulation management and control using hypothermic machines
- Pulmonary Rehabilitation
- Advanced life-saving activities (resuscitation, defibrillation, transport, etc)

9. Students Assignments

- Case Studies
- Case Presentations
- Observation reports
- Patient education demonstrations
- Project on a respiratory disease
- Drug Study

10. Instructor Assignments

- Prepare clinical rotation plan
- repare teaching plan for students
- Perform clinical evaluation of students/staff
- Management plan-designing
- Supervision techniques-writing unit report, performance appraisal, guidance, staff management, material management
- Maintenance of records and reports
- Student assignment evaluation and report

Total Hours Schedule for Practicum Courses (12hrs per week x 16 weeks' x 1 semester)

Learning Activity	Total HRs expected
ICUs (Adult, Pediatrics, Neonatal), CCUs, Recovery units, Emergency, Ambulances/transport	151 hours
Respiratory units/clinics, Operation Theaters, Endoscopy units, dialysis unit, general wards, etc	41 hours

N.B.:

- Clinical preceptors and senior instructors will accompany students in the practice area all the time
- Early in the morning there should be clinical round in ICU and in-patient wards

- Every day in the afternoon there will be debriefing session
- Every Friday afternoon: whole group discussion for case studies and presentation. Eg. Discussion of unusual cases, interesting cases...)

Course title: Research Methodology

Course Code: MSC-504

Credit Hours: 2

Duration: 16 weeks

Course Description: This Course is designed for Msc in Respiratory Therapy students to have basic theoretical and practical background in research methodology. This course will enable the students to understand the methodological aspects of research process and operationalize to write research proposal (Scientific writing), data collection, organization, analysis and interpretation. Furthermore, it gives the students the opportunities to disseminate and utilize research findings and also this course is intended to prepare learners to design and conduct operational research specific to Pediatrics nursing for the evidence based practice.

Course Objective:

At the end of this Course, learners will be able to describe and apply basic research method to investigate health problems at as it applies to RT nursing to the improve quality of care, promote the health status of patients and families, and prevent an emergency and critical illness conditions and also at the end of this Course, the RT student will be able to design and conduct operational research specific to respiratory therapy for the evidence based practice and will be implemented in RC thesis.

Supporting Objectives

- Select a priority research problem (S2)
- Conduct literature review
- Develop a research proposal (S5)
- Collect data according the research protocol (S5)
- Analyze data with appropriate statistics(S4)
- Interpret the findings (S3)
- Write a scientific research report (S5)
- Disseminate research findings

Learning Outcomes: To meet the above Course objectives, the student will be expected to:

- Explain the concept of research and nursing research (K2)
- Describe the different types of research (K2)

- Identify a research problems (S4))
- Write literature review text (S3)
- Develop research objectives (S5)
- Distinguish the different types of nursing research designs (K4)
- Select study population (S6)
- Identify different types of sampling methods (K4)
- Outline different types of data collection methods (k4)
- Differentiate different methods of data analysis (K4)
- Analyze ethical issues in research processes (k4)
- Develop a research proposal (S5)
- Point out different ways of referencing (K4)
- Prepare work plan and budget break down (S5)
- Prepare a research report (S5)
- Describe how to utilize research findings for evidence based PCHN practices.

Teaching-Learning Methods

- Interactive lecture and discussion
- Small group learning activities: assignment, exercise, proposal writing
- Individual reading
- Project writing
- Use of computer applications and access to the internet
- Student presentation
- Personal reflection exercise

➢ **During the research project Teaching-Learning Methods will be** Supervised research and Portfolio.

➢ **During the research project the teaching-Learning Materials will**

- Corlien M. Varkevisser, IndraPathmanathan, and Ann Brownlee. Designing and Conducting Health Systems Research Projects: Volume 1 (Proposal Development and Fieldwork). KIT/IDRC. 2003
- Margaret L. Brandeau: Operations research and health care. Handbook of methods and applications
- Nigel Bruce, Daniel Pope and Debbi Stanistreet: Quantitative methods for health research. A practical interactive guide to epidemiology and statistics

- Ann Bowling: Research methods in health. Investigating health and health service.
- AV aids (LCD and computer or Overhead projector and transparencies, writing board and marker or chalk) Computers with data analysis software and internet access Handouts of lecture materials

Assessment Methods

Formative

assessment

- Exercise and assignment
- Student presentation
- Portfolio
- Progressive assessment

Summative assessment

- Journals review (10%)
- Written exam (40 %)
- Research proposal (50%)

Summative assessment for research project:

- Developing a research protocol (40 %)
- Final research report (30 %)
- Oral presentation of research finding (30 %)

Course schedule research methodology :

Week	Contents
Week 1	1. Introduction to research ✓ Research and nursing research ✓ Importance of research ✓ Common research terminologies ✓ Types of research ✓ Steps in research process

Week 2	2. Identification and delimitation of research problems ✓ Research topic selection ✓ Identification and prioritization of research problem ✓ Writing study background and problem statement
Week 3-4	3. Literature Review ✓ Importance of literature review ✓ Approaches to literature review (Induction and deduction) ✓ Steps in literature review ✓ Different ways acknowledging scientific papers and referencing ✓ Commonly used electronic data bases ✓ Conceptual frame work of study
Week 5	4. Conceptual and theoretical framework ✓ Concepts ✓ Theories ✓ Hypothesis
Week 6	5. Objective writing ✓ General objective ✓ Specific objectives
Week 7-9	6. Methodology
	✓ Types research design (Observational and experimental) ✓ Selection of study design ✓ Selection of target population ✓ Sampling and sampling techniques ✓ Identification and operationalization of research variables ✓ Methods and procedure of data collection ✓ Data analysis, interpretation and synthesis ✓ Quality assurance techniques in research ✓ Work plan and budget break down
Week 10	7. Ethical considerations in research

Week 11	8. Interpretation of results ✓ Writing results ✓ Conclusions and recommendations
Week 12	9. Communications in research ✓ Report writing ✓ Research findings dissemination

Second Year – Second Semester

Year Semester	Couse code	Course Title / Description	Theory HRs /week	Practice HRs/ week	Credit Hours
Second Year - 2nd Semester	RCP-524	Advanced Respiratory Care	2	6	4
	RCP-525	Clinical Practice III	0	12	4
	RCP-527	Sleep Disorders and Polysomnography	4	0	4
	RCP-526	Leadership and Management for Respiratory Care professionals	3	-	3
	Semester Total		9	18	15

Course Title: Advanced Respiratory Care

Course Code: RCP-524

Credit Hours: 4

Duration: 16 weeks

Course Description: Advanced concepts in the evaluation, monitoring and therapeutic modalities including specialized learning experiences in therapeutic modalities, mechanical ventilation and cardiovascular monitoring for both adult and neonatal patients, and home care ventilation.

Course Content

• Nutritional Assessment and Treatment of the Critically Ill Patient
• Advanced Modes of Mechanical Ventilation
• Respiratory emergencies e.g pneumothorax, pulmonary embolism, drowning, inhalation injury, ARDS, hemoptysis, bronchopleural fistula, etc
• BiLevel Ventilation Theory and Application
• Current Evidences in Ventilator management of Trauma Patients
• High Flow Oxygen in Acute Respiratory Failure
• Mobility of critical patients in and out of ICU
• ECMO: Extracorporeal Membrane Oxygenation
• Heart-lung machine application
• Interventions to Optimize Oxygenation During Mechanical Ventilation
• Mechanical Ventilation Waveform Analysis
• Pulmonary Hypertension
• Respiratory Care of the Morbidly Obese Patient
• Setting the Ventilator for Maximum Patient Comfort
• Cardiopulmonary exercise testing (CPET) and full PFT study
• Pulmonary rehabilitation including respiratory home care modalities

• Apnea of Prematurity
• Bronchopulmonary Dysplasia
• Meconium Aspiration Syndrome
• Pneumothorax in the Neonate
• Neonatal Respiratory Distress Syndrome
• Transient Tachypnea of the Newborn
• Cardiac disorders /defects of the neonates
• Neonatal & pediatrics Resuscitation
• Oxygen delivery modalities special for neonates & pediatrics
• Sick Neonates and pedi transport
• Alveolar microstrain and stress
• Thermoregulation for neonates
• Challenges in Neonatal and Pediatrics ventilation
• ECHMO (Extracorporeal membrane oxygenation)

Teaching-Learning Methods

- Interactive lecture and discussion
- Small group learning activities: assignment, exercise, discussion
- Individual reading
- Personal reflection exercise
- Clinical practice
- Case study
- Simulated practice
- Portfolio based learning
- Seminar
- Journal review

Teaching and Learning Materials

- EGAN'S Fundamentals of Respiratory Care, 12th Edn, Wilkins, Stoller, Kacmarek
- Workbook, EGAN'S Fundamentals of Respiratory Care, 12th Edn, Stephen F.Wehrman
- Guide to Mechanical Ventilation and Intensive Respiratory Care, Lynelle N.B. Pierce
- Mechanical Ventilation, *Physiological & Clinical Applications*, 7th Ed, Susan P. Pilbeam
- Clinical Application of Blood Gases, 5th Edn, Shapiro, etal
- Respiratory Care Principles and Practice, Dean R. Hess, etal
- Ruppel's Manual of pulmonary Function Testing
- Respiratory Care Clinical Competency Lab Manual by Sandra T. Hinsiki, 1st Edition
- EGAN'S Fundamentals of Respiratory Care, 12th Edn, Wilkins, Stoller, Kacmarek
- Workbook, EGAN'S Fundamentals of Respiratory Care, 12th Edn, Stephen F.Wehrman
- Guide to Mechanical Ventilation and Intensive Respiratory Care, Lynelle N.B. Pierce
- Mechanical Ventilation, Physiological & Clinical Applications, 2nd Ed, Susan P. Pilbeam
- Comprehensive Perinatal and Pediatrics Respiratory Care, Kent Whitaker
- Clinical Application of Blood Gases, 5th Edn, Shapiro, etal
- Perinatal & Pediatrics respiratory Care, 3rd Edn, Walsh, etal

Assessment Methods

Formative Assessment

- Drills and practical test
- Structured feedback report
- Cases and scenarios
- Logbook
- Portfolio

Summative Assessment

- Progressive/continuous assessment (seminar, Quiz, practice observation) (20%)
- OSCE (20%);
- Objective Structured Written Exam (40%)
- Rating of guided clinical practice (360 global rating, logbook, portfolio) (20%)

Course title: Clinical Practicum II

Course Code: RCP-525

Credit Hours: 4

Duration: 16 weeks

Description: Clinical Practicum II

This course provides an opportunity to acquire clinical experience in the intensive care of neonatal and pediatric patients. Topics include: patient assessment, medical gas therapy, aerosol therapy, incentive spirometry, chest physiotherapy, airway care, initiation of mechanical ventilation, patient stabilization and monitoring, evaluation of hemodynamic variables, bronchial hygiene, evaluation for weaning, endotracheal intubation, monitoring (invasive and non-invasive), labor and delivery assistance, and transport. Students are also given the opportunity to further develop their adult critical care skills. Clinical experience in neonatal and pediatric respiratory care in the areas of patient assessment and monitoring (invasive and non-invasive), mechanical ventilation, ECMO, airway care, labor and delivery assistance and transport. Students will also have an opportunity for reinforcement of adult intensive care. In addition, students are provided with an opportunity in home health, skilled nursing facility, pulmonary rehabilitation and sleep.

Pre-requisite-prior approval of the program director and an approved signed preceptor agreement on file.

Prerequisite: RCP 523 , Satisfactory completion of first-year and first semester of 2nd year coursework.

Teaching and learning methods

- Clinical Attachment
- Demonstration
- Guided practice
- Group discussion
- Seminar
- Individual/group tutorial
- Case study
- Skill lab
- Bedside teaching
- Self-study

- Portfolio
- Clinical simulation
- Video show
- Inter-professional learning experience in the clinic practice

Teaching and learning materials

- EGAN's Fundamentals of Respiratory Care, 12th Edition x 10 pieces ------- Text Book
- Wilkins Clinical Assessment in Respiratory Care, 7h Edition x 10 copies ----- Text Book
- Mechanical Ventilation: Physiological and Clinical Applications, 7th ed, Susan P. Pilbeam
- Foundations of Respiratory Care, Wyka, Mathews, Clark
- Comprehensive Perinatal and Pediatrics Respiratory Care, Kent Whitaker
- Clinical Application of Blood Gases, 5th Edn, Shapiro, etal
- Guide to Mechanical Ventilation and intensive Respiratory Care, Lynelle N.B. Pierce
- Principles of pharmacology for respiratory Care, 3rd Ed, Bills & Soderberg
- Rau's Respiratory Care pharmacology , 10th Ed, Douglas S. Gardenhire
- Cardiopulmonary Pharmacology for Respiratory Care, Jahangir Moini
- Respiratory Care Principles and Practice, Dean R. Hess, etal
- Ruppel's Manual of pulmonary Function Testing, 11th edition , Carl D. Mottram
- Respiratory Care Clinical Competency Lab Manual by Sandra T. Hinsiki, 1st Edition
- Respiratory Care Anatomy and Physiology, *Foundations for Clinical Practice*, Will Beachey

Methods of

assessment Formative

- Direct observation of performance
- Oral questioning
- Case study /Seminar
- 360 degree evaluation
- Review of portfolio, log book
- Journal review

Summative

- Direct observation of performance
- Review of content of portfolio
- 360 degree evaluation
- Objectively written exam
- Project/seminar report

Master the following clinical experiences but not limited to:

11. Procedures to be performed

- Advanced life support system
- Endotracheal intubation
- Positive Pressure Ventilation / Mechanical ventilation
- Arterial Blood gas sampling and interpretation
- ECG recording
- Spirometry/ PFT
- Sleep medicine/lab
- Use of defibrillator CPR

12. Assist health care team during procedures

- Bronchoscopy
- Chest tube insertion
- Tracheostomy

13. Routine Activities during Clinical Attachments

- Work as a respiratory therapist in general
- Specific bed side teaching related to respiratory tract illnesses
- Preparation of supplies and instruments
- Measures and interprets Pulse-oximetry, ETCo2, NIBP, IBP, etc
- Venous access, ABG collection monitoring
- Oxygen administration, suctioning respiratory therapy,
- Airway management
  - Application of oropharyngeal airway
  - Oxygen therapy

- CPAP
- Care of Tracheostomy
- Endotracheal Intubation
- Extubation, decannulation

- Care of chest drainage and nebulization
- Chest physiotherapy
- Monitoring of critically ill patients from a cardio-respiratory point of view
- Setting and follow up of patients on ventilators
- Thermoregulation management and control using hypothermic machines
- Pulmonary Rehabilitation
- Advanced life-saving activities (resuscitation, defibrillation, transport, etc)

14. Students Assignments

- Case Studies
- Case Presentations
- Observation reports
- Patient education demonstrations
- Project on a respiratory disease
- Drug Study

15. Instructor Assignments

- Prepare clinical rotation plan
- repare teaching plan for students
- Perform clinical evaluation of students/staff
- Management plan-designing
- Supervision techniques-writing unit report, performance appraisal, guidance, staff management, material management
- Maintenance of records and reports
- Student assignment evaluation and report

Total Hours Schedule for Practicum Courses (12hrs per week x 16 weeks' x 1 semester)

Learning Activity	Total HRs expected

ICUs (Adult, Pediatrics, Neonatal), CCUs, Recovery units, Emergency, Ambulances/transport	**151 hours**
Respiratory units/clinics, Operation Theaters, Endoscopy units, dialysis unit, general wards, etc	**41 hours**

N.B.:

- Clinical preceptors and senior instructors will accompany students in the practice area all the time
- Early in the morning there should be clinical round in ICU and in-patient wards
- Every day in the afternoon there will be debriefing session

Every Friday afternoon: whole group discussion for case studies and presentation. Eg. Discussion of unusual cases, interesting cases…)

Course Tittle : Sleep Disorders and Polysomnography

Course Code: RCP-527

Credit hours: 4

-Course description:

This course is designed to help the student to acquire and knowledge of sleep disorders and to implement the polysomnography studies.

-Course Objectives:

By the end of this course the student will be able to:

1. Explain definition, classification, etiology and complications and treatment of obstructive sleep apnea syndrome (OSA), central sleep apnea syndrome (CSA) ,periodic breathing (PB), obesity hypoventilation syndrome (OHS), periodic limb movement disorder and parasomnias.
2. Explain Epidemiology, pathophysiology and etiology of daytime hyper somnolence
3. Relevant investigations (including screening over-night oximetry and sleep studies (respiratory polygraphs and polysomnography))
4. Apply methods of treatment (including ventilator support and CPAP).
5. Perform non-invasive imaging modalities: chest x-ray, cephalometry, CT, MR
6. Explain Management of SRD (including treatment with CPAP)
7. Organization of services for SRD
8. To sensitize about performing sleep study (polysomnography) and basics of PSG reporting.

-Course content

Outlines	hrs.
History and introduction to Sleep medicine and sleep Technology. Basics of Sleep.	4
Sleep Disorders Sleep related breathing disorders Sleep Apnoea / Hypopnoea Syndrome : Obstructive Sleep Apnea Syndrome (OSA)	20
Central Sleep Apnea (CSA) Periodic Breathing (PB)	6
Obesity Hypoventilation Syndrome (OHS) Daytime Hyper somnolence & Ventilator Support and CPAP Organization of services for SRD	6
Polysomnography (PSG) Equipment Parameters monitored in sleep study	6
Performing Sleep Study Recording of parameters	6
Performing Polysomnography	6

Basic Reporting and Interpretation	
Noninvasive Monitoring of Gas , Exchange During Testing & Diagnosis, Treatment, and Outcome Management of Sleep-Disordered Breathing.	6

References

1. SPRIGG'S ESSENTIALS OF Polysomnography A Training Guide and Reference for Sleep Technicians , 1st edition 2021 , Lisa M. Endee, MPHc, RRT-SDS, RPSGT, RST.
2. Polysomnography for the sleep technologist : instrumentation, monitoring, and related procedures / Bonnie Robertson, Buddy Marshall, Margaret-Ann Carno. -- First edition.
3. FUNDAMENTALS of Sleep Medicine, First edition 2012. Richard B. Berry, MD

Teaching Methods –common to all Courses

- Brain storming
- Group discussion
- Plenary presentation by participants
- Mini-lecture by facilitators
- Manual and computer based hand on exercises

Summative Assessment

Progressive assessments of group and individual reports and exercises

(40%) Written Examinations (60%)

Course Tittle: Leadership and Management for Respiratory Care Professionals

Course Code: RCP-526

Credit Hour: 3

Course Description: This course is designed to comprehensively examine the dynamic evolution of respiratory care as a profession. The role of the respiratory care professional in the areas of leadership, management, and professional ethics will be explored with regards to the profession's impact on legislation, regulation, and politics.

Course Objective

- To explore the leadership and managerial context within which a RC professional are/will be practicing
- To provide an understanding of the principles of leadership and management and their application within health care facilities and organizations.
- To enable you to explore your own leadership style and impact on others,
- To provide a range of practical skills to enhance your confidence as a leader.

Course Outline and Learning methods

The program will be based around the following themes:

- The Leadership Context: Understanding the national health system of Yemen
- Understanding Leadership and Management in Health Care organizations
- Understanding Yourself: Working with Others
- Managing and Improving Services

In addition, students will undertake, in groups, an internal consultancy project, which will be presented on the final day of the Course. Particular topics covered are:

- Structure and operation of the National Health System in Yemen
- Contemporary health policy
- Understanding organizations and organizational culture
- Exploring leadership and management
- Interpersonal emotional intelligence and leadership style
- Building high performance teams
- Service improvement, service re-engineering, service disruption
- Leading and managing change

Teaching

- A range of teaching and learning opportunities will be used including key note

talks, small group discussions, seminars and independent study. Students will be expected to consult the literature on management theory as well as leadership strategies and styles. The course work will cover organizational structures and culture, personal and organizational development, public and patient involvement and the qualities needed to be an effective leader in the present, challenging, healthcare environment.

Assessment

- Students will choose a prominent leader/manager in the healthcare industry and evaluate the leadership/management styles of the leader/manager. This will help students to demonstrate a critical understanding and application of an aspect of the theoretical basis of leadership.

Assessment: Individual Portfolio-- 40%; Written Examinations -- 60%

Annex-1: Respiratory Care Training Log book

21 September University of Medical & Applied Sciences (21 UMAS)

POSTGRADUATE Deanship

RESPIRATORY CARE PROGRAM

CLINICAL PRACTICUM

Text books and Reference books:

- EGAN's Fundamentals of Respiratory Care, 12th Edition x 10 pieces---------- Text Book
- Wilkins Clinical Assessment in Respiratory Care, 7h Edition x 10 copies ----- Text Book
- Clinical Manifestations and Assessment of Respiratory Disease, 7ed -Mosby .
- Mechanical Ventilation: Physiological and Clinical Applications, 7th ed, Susan P. Pilbeam's
- Mechanical Ventilation , 1st ed. David C. Shelledy, Jay I. Peters - Jones & Bartlett Learning
- Foundations of Respiratory Care, Wyka, Mathews, Clark
- Comprehensive Perinatal and Pediatrics Respiratory Care, Kent Whitaker
- Clinical Application of Blood Gases, 5th Ed , Shapiro, etal
- Guide to Mechanical Ventilation and intensive Respiratory Care, Lynelle N.B. Pierce
- Principles of pharmacology for respiratory Care, 3rd Ed, Bills & Soderberg
- Rau's Respiratory Care Pharmacology , 9th ed. , douglas s. gardenhire
- Cardiopulmonary Pharmacology for Respiratory Care, Jahangir Moini
- Respiratory Care Principles and Practice, Dean R. Hess, etal , 2020
- Ruppel's Manual of pulmonary Function Testing , 2018
- Respiratory Care Clinical Competency Lab Manual by Sandra T. Hinsiki, 1st Edition
- Respiratory Care Anatomy and Physiology, *Foundations for Clinical Practice*, Will Beachey 7th ed. ,
- Respiratory critical care / David W. Chang, Gary C. White, Jonathan B. Waugh, Ruben D. Restrepo. 1st ed.
- Neonatal and Pediatric Respiratory Care 5th Edition , Brian K. Walsh .
- Respiratory Care Equipment Mosby's 10E , J.M Cairo .

Required Practices for the Logbook

Ser No.	Name of Procedure / Cases	Minimum to Observe	Minimum to Assist	Minimum to perform
1	Endotracheal Intubations / LMA insertions	5	5	5
2	Endotracheal Extubations	5	5	5
3	Inhalation Therapy	5	-	5
4	Initiation and application of NIV Ventilation	-	-	5
5	Initiation of Invasive Ventilation (Intubated and Tracheostomy patients)	-	-	10
6	Follow up of Patients on Mechanical ventilation	5	-	10
7	Weaning Trials of Mechanical ventilation	5	-	10
8	ABG sampling from patients	-	10	5
9	ABG Interpretation	5	-	10
10	Chest Physiotherapy	5	5	5
11	Pulmonary Function Test – Simple desktop Spirometry machineo	5	-	5
12	Full pulmonary Function testing – Including TLC and DLCO	5	3	2
13	Advanced chest/respiratory procedures like thoracic surgery, tracheostomy, thoracentesis, bronchoscopy, chest tube insertion	10	10	-

14	Participate on a code (CPR) including BLS, PALS, NALS	-	10	-
15	Being part of a team transporting of a critical patient to and from the hospital	-	5	-
16	Patient family education on Asthma self- management and other lung disease	5	-	5
17	Conduct smoking cessation session with a client	2	-	1
18	Evaluate patients for the presence of sleep disorders	2	-	3
19	Perform cardiopulmonary exercise stress testing	2	2	2
20	Resting or Portable EKG recording	2	-	5

21 September University of Medical & Applied Sciences (21 UMAS)

POSTGRADUATE Deanship

RESPIRATORY CARE PROGRAM

CLINICAL PRACTICUM

Activity Logbook Form

NAME:_____STUDENT ID

Date and Time	*Department*	*Procedure name*	*Done / Assist*	*Clinical setting and Remark*	*Name of Preceptor/ Instructor/ lead physician/ head RT*	*Signature*

The End „

27/6/2022