Republic of the Philippines
OFFICE OF THE PRESIDENT
COMMISSION ON HIGHER EDUCATION

CHED MEMORANDUM ORDER
No. 09
Series of 2007

SUBJECT: POLICIES AND STANDARDS FOR BACHELOR OF SCIENCE IN RESPIRATORY THERAPY EDUCATION

In accordance with pertinent provisions of Republic Act (RA) No. 7722, otherwise known as the "Higher Education Act of 1994" and pursuant to the provision of CEB Resolution No. 904 s. 2006, and for the purpose of rationalizing the Bachelor of Science in Respiratory Therapy Education (BSRT) in the country, with the end in view of keeping at pace with the demands of global competitiveness, the following policies and standards for BSRT are hereby adopted and promulgated by the Commission thus:

Article I

INTRODUCTION

Section 1. The main objective of Bachelor of Science in Respiratory Therapy Education is to provide the country with respiratory therapists who are humane and scientifically competent to deliver the full spectrum of respiratory services needed in modern health care for patients' safety and welfare.

Article II

AUTHORITY TO OPERATE

Section 2. All private higher education institutions (PHEIs) intending to offer the BSRT program must first secure proper authority from the Commission in accordance with the existing rules and regulations. State universities and colleges (SUCs), and local colleges and universities (LCUs) should likewise strictly adhere to the provisions in this policies and standards.

Article III

PROGRAM SPECIFICATIONS

Section 3. Graduates of this program shall be conferred the degree of Bachelor of Science in Respiratory Therapy (BSRT).

Section 4 **Program Description**

The Bachelor of Science in Respiratory Therapy is a four-year program consisting of general health science education subjects and professional subjects. The first and second semesters of the fourth year level is the internship program in an accredited training laboratory with rotational duties in different sections of one or

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more hospitals such as Pulmonary Diagnostics, General Respiratory Care, Adult Intensive Care Unit, Neonatal & Pediatric Critical Care Unit, and Sleep Laboratory.

a. **Objectives of the BSRT Education:**

1. To develop the knowledge, attitudes and skills in the performance of clinical pulmonary care procedures essential to the practice of Respiratory Therapy needed to help the physician in the proper diagnosis, treatment and prevention of diseases.

2. To develop leadership skills, competence, in critical and analytical thinking to advance knowledge in Respiratory Therapy and contribute to the challenges of the profession

3 To uphold moral and ethical values in the service of society and in the practice of the profession

b. **Specific professions, careers, occupations or trades that the graduates of these programs may go into:**

- Clinical Practice: Respiratory Therapist in Hospital Pulmonary Laboratories, Clinics and Sanitaria, Home Care Services, and Emergency Medical Service Practitioner
- Education: Respiratory Therapy graduates can be employed as faculty in colleges and universities offering Respiratory Therapy program to teach professional subjects and conduct research.
- Respiratory Care Industry: Product specialist, Sales and Marketing

Article IV

COMPETENCY STANDARDS

Graduates of BS Respiratory Therapy like any other Health Professions must be able to apply analytical and critical thinking in clinical practice. As such, graduates aforementioned must possess the following entry level competencies for the following key areas of the respiratory care profession:

A. Professional & Organizational Functions

1. Perform and adhere to the scope of respiratory care practice with care, dexterity, and precision within the bounds of professional, medical, legal, and ethical standards.

2. Demonstrate effective written & oral communication skills with supportive caring behavior.

3. Demonstrate critical judgment in professional practice.

4. Apply infection prevention and control procedures.

5. Provide cardio-respiratory care education to patients/clients and their family members.

B. Assessments, Consultations & Collaborations

1. Develop, monitor, assess, and adjust respiratory care parameters based on diagnostic test information and records.

2. Participate in professional consultations in a multi-disciplinary forum or research.

C. Diagnostic Interventions

1. Do arterial puncture and interpret blood gas analysis.
2. Perform and interpret tests of pulmonary function including spirometry, sleep studies and other related tests.
3. Conduct electrocardiogram procedure and recognize normal / basic arrhythmias.
4. Interpret hemodynamic data.

E. Therapeutic Interventions

1. Initiate measures/procedures to maintain airway patency of intubated/non-intubated patient
2. Provide oxygen therapy with appropriate delivery device and humidification.
3. Do aerosol therapy with appropriate medication dosage and device.

F. Supportive Interventions

1. Provide appropriate mode of ventilation with its corresponding parameter based on physician's order and patient's need.
2. Initiate, monitor, and adjust ventilator parameters based on patient response, physical examination, and laboratory data, based on standardized respiratory protocols.
3. Assist patients in promoting nutritional, emotional and physical well-being.

Article V

CURRICULUM

Section 5 Curriculum Description

Higher education institutions offering Respiratory Therapy program may exercise flexibility in their curricular offering. However, the following respiratory therapy courses are prescribed minimum requirements to be implemented.

Section 6 Curriculum Outline

A. Outline of General Education Subjects

	Units
Language and Humanities	***18***
English	6
Filipino	6
Humanities (Philosophy; Logic)	6

	Units
Mathematics, Natural Science & Information Technology	***25***
Mathematics	6
Basic Statistics	3
Natural Science with STS	3
Chemistry (General Inorganic)	3
Physics	4
Biochemistry	3
Basic Computer Concepts	3

	Units
Social Sciences	***6***
Psychology	3
Sociology / Anthropology	3

	Units
General Health Science Education Curriculum	***14***
Human Anatomy & Physiology	4
Health Care	5
Medical Terminology	2
Health Economics	3

	Units
Mandated Subjects	***9***
Rizal's Life Works & Writings	3
Phil. Government & Constitution	3
Phil. History	3

	Units
Physical Education	***8***

	Units
NSTP	***6***

Total Units 86 Units

B. Outline of Professional Education Subjects

	Units
Professional Education Subjects	***45***
Cardiopulmonary Anatomy & Pathophysiology	3
Neuromuscular Anatomy & Pathophysiology	3
Fundamentals of RT	5
Patient Assessment	2
Principles of Pulmonary Rehabilitation	3
Airway Management & Cardiopulmonary Resuscitation	2
Pharmacology	2
Principles of Neonatal/Pediatric Respiratory Care	2
Principles of Pulmonary Physiology in the ICU	3
Mechanical Ventilation	4
Ventilation & Gas Exchange Monitoring	3
Microbiology	4
Test of Pulmonary Function & Structure	3
ICU Crisis Management	1
Management & Health Care Ethics	2
Advanced Mechanical Ventilation	1
Hemodynamic Monitoring	1
Teaching in HealthCare Setting	1

Total Units 45 Units

Summary of Units

	Units
General Health Science Education Curriculum	86
Professional Courses	47
Seminar (Respiratory Care Seminar 1&2)	4
Clinical Internship (Clinical Education 1 & 2)	30
Grand Total	**167**

Section 7 Program of Study

Bachelor of Science in Respiratory Therapy

Minimum Curriculum Requirements

FIRST YEAR

First Semester *Second Semester*

Subject	Lec	Lab	Units	Subject	Lec	Lab	Units
English 1 (Communication Arts 1)	3	0	3	English 2 (Communication Arts 2)	3	0	3
Filipino 1 (Sining ng Pakikipagtalastasan)	3	0	3	Filipino 2 (Pagbasa at Pagsulat)	3	0	3
Mathematics 1 (College Algebra)	3	0	3	Sociology/Anthropology	3	0	3
Natural Science 1 (Zoology) w/ STS	2	1	3	Mathematics 2 (Plane Trigonometry)	3	0	3
Philippine History	3	0	3	Chemistry (General & Inorganic)	2	1	3
Physical Education 1 (Physical Fitness) (Calisthenics & Gymnastics)	2	0	2	Physical Education 2 (Folk Dancing)	2	0	2
NSTP 1	3	0	3	NSTP 2	3	0	3
TOTAL			**20**	**TOTAL**			**20**

SECOND YEAR

First Semester *Second Semester*

Subject	Lec	Lab	Units	Subject	Lec	Lab	Units
Mathematics 3 (Basic Statistics)	3	0	3	Basic Computer Concepts	2	1	3
Rizal	3	0	3	Physics (College Physics)	3	1	4
Human Anatomy & Physiology	3	1	4	Health Economics with Taxation & Land Reform	3	0	3
Health Care	3	2	5	Biochemistry	3	0	3
Physical Education 3 (Swimming)	2	0	2	Political Science (Phil. Government & New Constitution)	3	0	3
Medical Terminology	2	0	2	Philosophy of Man	3	0	3
General Psychology	3	0	3	Logic	3	0	3
				Physical Education 4 (Games & Recreation)	2	0	2
Total			**22**	**Total**			**24**

THIRD YEAR

First Semester *Second Semester*

Subject	Lec	Lab	Units	Subject	Lec	Lab	Units
Cardiopulmonary Anatomy & Pathophysiology	3	0	3	Principles of Neonatal/Pediatric Respiratory Care	2	0	2
Neuromuscular Anatomy & Pathophysiology	3	0	3	Principles of Pulmonary Physiology in the ICU	3	0	3
Fundamentals of RT	3	2	5	Mechanical Ventilation	3	1	4
Patient Assessment	2	0	2	Ventilation & Gas Exchange Monitoring	2	1	3
Principles of Pulmonary Rehabilitation	3	0	3	Microbiology	3	1	4
Airway Management & Cardiopulmonary Resuscitation	1	1	2	Test of Pulmonary Function & Structure	2	1	3
Pharmacology	2	0	2				
Total			**20**	**Total**			**19**

FOURTH YEAR

First Semester *Second Semester*

Subject	Lec	Lab	Unit/s	Subject	Lec	Lab	Unit/s
ICU Crisis Management	1	0	1	Advanced Mechanical Ventilation	1	0	1
Management & Health Care Ethics	2	0	2	Hemodynamic Monitoring	1	0	1
Respiratory Care Seminar 1	2	0	2	Respiratory Care Seminar 2	2	0	2
Clinical Education 1	-	-	15	Clinical Education 2	-	-	15
				Teaching in HealthCare Setting	3	0	3
Total			**20**	**Total**			**22**

Section 8 **Respiratory Therapy Internship Program** **(**See Appendix A)

Article VI

COURSE SPECIFICATIONS

Course Name	**Cardiopulmonary Anatomy & Pathophysiology**
Course Description	An in-depth presentation of the cardiopulmonary system, its abnormalities, and corrective techniques as related to respiratory therapy. Study of concepts and theory of selected cardiopulmonary diseases, to include: definition, clinical manifestations, etiology, pathologic, radiological and laboratory findings; prevention, prognosis, and treatment.
Course Credit	3 units Lecture
Contact Hours	3 lecture hours per week
Prerequisite	Human Anatomy & Physiology
Placement	Third year First semester

Course Objectives	At the end of the course, the student will be able to: 1. Enumerate the components of the cardiopulmonary system and describe the normal function of each part. 2. Compare and contrast the normal and pathologic findings in diagnostic studies. 3. List down common cardiopulmonary diseases and discuss their clinical manifestations, etiology, radiological and laboratory findings, prevention, prognosis, and treatment.
Course Outline	I. Normal Lung Structure A. The Bony Thorax and Chest Wall B. Respiratory Muscles C. Airways D. Alveolar-Capillary Exchange Units E. Lung Compliance F. Airway Resistance G. Circulation H. Lymphatics II. The Circulatory System A. Blood B. The Heart C. Pulmonary & systemic vascular systems D. Cardiac cycle & it's effect on blood pressure E. Blood pressure F. Distribution of pulmonary blood flow III. Normal Lung Function A. Ventilation B. Diffusion Capacity C. Lung Circulation D. Gas Transport and Acid-Base Status of the Lung E. Ventilation-Perfusion Relationships F. Normal Exercise Physiology IV. Airflow Obstruction A. Anatomical and Physiological Concepts B. Regulation of Airway Caliber C. Mechanisms of Airflow Obstruction D. Pulmonary Function in Obstructive Airway Diseases V. Parenchymal Inflammation and Injury A. Case Study: Introduction B. Pulmonary Parenchymal Structure and Function C. Inhalation Injury D. Acute Lung Injury E. Lung Function F. Therapy and Outcome VI. Pulmonary Hypertension A. Definition and Classification B. Case Study: Introduction C. History and Physical Examination D. Diagnostic Evaluation E. Primary Pulmonary Hypertension F. Management of Pulmonary Hypertension

VII. Respiratory Failure
- A. Case Study: Introduction
- B. Definition of Respiratory Failure
- C. Pathophysiology of Respiratory Failure
- D. Diagnosis of Respiratory Failure
- E. Treatment

VIII. Asthma
- A. Clinical Features
- B. Pathology
- C. Airway Inflammation and Inflammatory Mediators
- D. Airway Hyperresponsiveness
- E. Diagnosis and Laboratory Evaluation of Asthma
- F. Pulmonary Function Changes in Asthma
- G. Effects of Airflow Obstruction on Cardiac Function
- H. Gas-Exchange Abnormalities
- I. Special Categories of Asthma
- J. Assessment of Severity
- K. Therapy for Acute and Chronic Asthma
- L. Complications of Asthma

IX. Chronic Obstructive Pulmonary Disease
- A. Case Study
- B. Causes of COPD
- C. Mechanisms of Airway Obstruction
- D. Clinical Aspects of COPD
- E. Epidemiology of COPD
- F. Treatment

X. Sarcoidosis
- A. Incidence of Sarcoidosis
- B. Etiology / Pathophysiology of Sarcoidosis
- C. Clinical Manifestations
- D. Diagnosis and Assessment of Disease Activity
- F. Prognosis
- G. Treatment

XI. Interstitial Lung Diseases
- A. Clinical Features and General Approach
- B. Case Study

XII. Pathophysiology of Pulmonary Embolism
- A. Pathophysiology and Risk
- B. Clinical Features
- C. Gas-Exchange Abnormalities
- D. Pulmonary Infarction
- E. Diagnostic Tests
- F. Management

XIII. Lung Cancer
- A. Epidemiology
- B. Etiology
- C. Clinical Presentation
- D. Diagnostic Work-Up
- E. Major Histologic Types of Lung Cancer
- F. Staging of Lung Cancer

	G. The solitary Pulmonary Nodule H. Therapy and Prognosis XIV. Mycobacterial Diseases A. Classification B. Tuberculosis C. Non-Tuberculous Mycobacteria D. Treatment XV. HIV Infection and the Lung A. Pathogenesis of HIV Infection in the Lower Respiratory Tract B. Pulmonary Infections in HIV Disease C. Diagnostic Approach to Pulmonary Disease in the HIV Patient XVI. Sleep Apnea and Sleep-Related Breathing Disorders A. Normal Control of Breathing B. Normal Sleep C. Control of Breathing During Sleep D. Sleep-Disordered Breathing XVII. Pleural Disease A. Normal Anatomy and Physiology B. Pleural Effusions C. Management of Pleural Effusions D. Pneumothorax XVIII. Occupational Lung Diseases A. Overview B. Silicosis C. Asbestos-Related Pulmonary Disorders D. Coal workers Pneumoconiosis E. Occupational Asthma F. Effects of Air Pollution
Textbook	Pulmonary Pathophysiology by Criner & D'Alonzo Cardio-Pulmonary Anatomy and Physiology by Des Jardins Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller

Course Name	**Neuromuscular Anatomy & Pathophysiology**
Course Description	The subject provides knowledge on normal and medical-surgical conditions that may lead to transient or permanent respiratory impairment which affects the neuromuscular system. Topics included are: (a) thoracic cage and spinal column deformities (b) effects of abdominal/thoracic incision on thoracic excursions and ventilation (c) neuromuscular disorders
Course Credit	3 Units Lecture
Contact Hours	3 lecture hours per week
Prerequisite	Human Anatomy & Physiology
Placement	Third year First semester
Course Objectives	At the end of the course, the student will be able to: 1. List down and discuss the main components of neuromuscular system.

	2. Correlate the problems of the neuromuscular system with its effect on the respiratory system.
Course Outline	I. The Thorax A. Gross Structure and Function B. Innervation of the Lung and Thoracic Musculature C. Vascular Supply II. Regulation of Breathing A. Medullary Respiratory Center B. Pontine Respiratory Center C. Reflex Control of Breathing D. Chemical Control of Breathing E. Ventilatory Response to Exercise F. Abnormal Breathing Patterns G. Effect of CO2 on Cerebral Blood Flow III. Neuromuscular and Other Diseases of the Chest Wall A. General Principles Relating to Neuromuscular Weakness of the Ventilatory Muscles B. Specific Neuromuscular Diseases a. Disorders of the Muscle (Myopathic Disease) b. Disorders of the Neuromuscular Junction c. Disorders of the Nerves d. Disorders of the Spinal Cord e. Disorders of the Brain C. Disorders of the Thoracic Cage a. Kyphoscoliosis b. Flail Chest c. Ankylosing Spondylitis
Textbook	Cardio-Pulmonary Anatomy and Physiology by Des Jardins Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller Pulmonary Pathophysiology by West J.B.

Course Name	**Fundamentals of Respiratory Therapy**
Course Description	The course is designed to provide basic background knowledge in the following: Respiratory Therapy history, principles, techniques; physical and physiological bases for the following procedures: oxygen therapy, humidity and aerosol therapy, lung expansion therapy, environmental therapy, pulmonary function testing, pulmonary rehabilitation, mechanical ventilation, blood gas extraction and analysis.
Course Credit	5 Units (3 units Lecture / 2 units Lab)
Contact Hours	3 lecture hours and 6 hours Lab per week
Prerequisite	Health Care
Placement	Third year First semester
Course Objectives	At the end of the course, the student will be able to: 1. Enumerate and explain the basic principle in the different areas of respiratory care practice. 2. Perform basic procedures in the different areas of respiratory care. 3. List down and discuss the indications, contraindications, hazards, and necessary

	precautionary measures needed in each respiratory care procedure.
Course Outline	I. Introduction A. Historical Background B. Respiratory Therapy Terminology C. Gas Physics/Laws II. Medical Gas Therapy A. Primary systems B. Secondary systems C. Oxygen Delivery Devices III. Humidity and Aerosol Therapy A. Humidifiers B. Aerosol Therapy Devices IV. Lung Expansion Therapy A. Incentive Spirometry B. Intermittent Positive Pressure Breathing (IPPB) C. Continuous Positive Airway Pressure (CPAP) D. Flutter and Other Devices V. Pulmonary Function Testing A. Indications and Contraindications/Hazards B. Equipment C. Procedure VI. Pulmonary Rehabilitation A. Indications and Contraindications/Hazards B. Equipment C. Procedure VII. Arterial Blood Gas Analysis A. Indications and Contraindications/Hazards B. Equipment C. Procedure VIII. Introduction to Mechanical Ventilation A. Indications and Contraindications/Hazards B. Equipment C. Procedure
Textbook	Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller Laboratory Exercises in Respiratory Care by Grady; Basic Clinical Lab Competencies for Respiratory Care by White Equipment Theory for Respiratory Care by White Respiratory Care Equipment by McPherson

Course Name	**Patient Assessment**
Course Description	The subject offers basic learning experience in patient history-taking, initial evaluation methods. Special emphasis is given on normal and adventitious breath sounds; chest physical examination employing the techniques of (a) Inspection (b) Palpation (c) Percussion and (d) Auscultation. Emphasizes the analytical and observational skills necessary to perform respiratory assessment. Topics include: interviewing the patient and physical examination.

Course Credit	2 Units Lecture
Contact Hours	2 lecture hours per week
Prerequisite	Human Anatomy and Physiology
Placement	Third year First semester
Course Objectives	At the end of the course, the student will be able to: 1. Discuss the importance of assessing the patient before proceeding to any respiratory care intervention. 2. Demonstrate proper use of different patient evaluation tools and explain the rationale for proper patient communication. 3. Perform patient assessment procedures and exhibit caring attitude during assessment.
Course Outline	I. Patient Safety, Communication, and Recordkeeping A. Safety Considerations 1. Patient Movement 2. Electrical safety 3. Fire Hazards B. Communication 1. Health Communication 2. Factors Affecting Communication 3. Effective Health Communications C. Recordkeeping 1. Components of a Traditional Medical Record 2. Legal aspects of Recordkeeping 3. Practical aspects of recordkeeping 4. The Problem-Oriented Medical Record II. Bedside Assessment of the Patient A. Interviewing the Patient and Taking a Medical History 1. Principles of Interviewing 2. Common cardiopulmonary symptoms 3. Format for the Medical History B. Physical Examination 1. General Appearance 2. Level of Consciousness 3. Vital Signs 4. Examination of the Head and Neck 5. Examination of the Thorax and Lungs 6. Cardiac examinations 7. Abdominal Examinations 8. Examination of the Extremities
Textbook -	Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller Clinical Assessment in Respiratory Care by Wilkins Legal Medicine book

Course Name	**Principles of Pulmonary Rehabilitation**
Course Description	The subject deals with rehabilitation techniques and procedures related and l to the practice of Respiratory Care: (a) chest expansion measurements and assessment (b) chest percussion and vibration (c) postural drainage (d) chest mobility exercises (e) diaphragm retraining and breathing exercises and (f) create a respiratory home care plan and follow-up. The roles of a Respiratory Care Practitioners in the elderly and procedures for homecare and nursing homes are also discussed.

Course Credit	3 units Lecture
Contact Hours	3 lecture hours per week
Prerequisite	Physics, Human Anatomy and Physiology
Placement	Third year First semester
Course Objectives	At the end of the course, the student will be able to: 1. Explain the importance of cardio-pulmonary rehabilitation program patients with chronic cardio-respiratory disorders. 2. Perform proper chest-physiotherapy on a simulated patient. 3. Enumerate and discuss the indications, hazards, and precautionary measures to be observed during chest-physiotherapy.
Course Outline	I. Introduction A. Goals of Cardiopulmonary Rehabilitation B. Historical Perspective C. Scientific Bases 1. Physical Reconditioning 2. Psychosocial Reconditioning 3. Physiology of Airway Clearance II. Pulmonary Rehabilitation Program A. Program Goals and Objectives B. Benefits and Potential Hazards C. Patient Evaluation and Selection D. Program Design E. Program Implementation F. Program Results III. Chest Physiotherapy A. Initial Evaluation of the Patient B. Chest Percussion and Vibration C. Postural Drainage D. Chest Mobility Exercises E. Diaphragm Retraining and Breathing Exercises IV. Lung Expansion Therapy A. Incentive Spirometry B. Intermittent Positive Pressure Breathing C. Continuous Positive Airway Pressure (CPAP) D. Flutter and Other Devices V. The Respiratory Homecare Program A. Family Orientation B. Patient Orientation C. Homecare Program Implementation and Monitoring
Textbook	Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller Basic Clinical Lab Competencies for Respiratory Care by White Respiratory Care Equipment by McPherson

Course Name	**Airway Management & Cardiopulmonary Resuscitation**
Course Description	The subject deals with the following: (a) definition and causes of clinical death (b) physiology during cardio-pulmonary arrest and resuscitation (c) procedures for one-

	rescuer and double-rescuer CPR (d) role of a respiratory therapist in airway management (e) anatomical structures of the upper/lower airways (f) common causes of airway obstruction and techniques how to relieve such obstruction (g) artificial airways (h) intubation equipment and procedures (I) oropharyngeal, endotracheal suctioning and tracheostomy care.
Course Credit	2 Units (1 unit Lecture ; 1 unit Lab)
Contact Hours	1 lecture hour; 3 laboratory hours per week
Prerequisite	Human Anatomy and Physiology
Placement	Third year First semester
Course Objectives	At the end of the course, the student will be able to: 1. Explain the importance of providing prompt basic life support. 2. Perform correct and efficient cardio-pulmonary resuscitation procedure on a CPR mannequin. 3. Enumerate the indications for intubation. 4. Perform correct intubation procedure on an intubation mannequin. 5. List down the hazards and complications of different intubation techniques.
Course Outline	I. Introduction a. The upper & lower airway anatomy II. Basic Life Support (BLS) a. The need for CPR skills b. Clinical & biological death c. Performance standard for CPR d. Performing CPR with mannequins & related mechanical devices e. Single & double-rescuer CPR III. Artificial Airway Devices a. Oropharyngeal airways b. Nasopharyngeal airways c. Endotracheal airways d. Tracheostomy airways e. Special Tubes IV. Endotracheal Intubation a. Clinical Indications b. Intubation procedure i. Supplies ii. Selection of tube iii. Assuring ventilation & oxygenation iv. Orotracheal intubation v. Nasotracheal intubation vi. Prevention of common errors vii. Signs of endotracheal intubation viii. Signs of esophageal intubation V. Complications of endotracheal intubation a. Early complications b. Late complications VI. Management of endotracheal & tracheostomy tubes a. Securing tube position b. Measurement of intra-cuff pressure

	c. Cuff inflation techniques i. Minimal occlusion volume (MOV) ii. Minimal leak technique (MLT) d. Irrigation & suctioning VII. Extubation a. Predictors of successful extubation b. Procedure c. Unplanned extubation
Textbook	Clinical Application of Mechanical Ventilation by Chang Principles of Airway Management by Finucane Basic Clinical Lab Competencies for Respiratory Care by White Respiratory Care Equipment by McPherson Handbook of Philippine Heart Association on Advanced Cardiac Life Support (ACLS) Handbook on Philippine Heart Association on Basic Life Support (BLS)

Course Name	**Pharmacology**
Course Description	Presents the general principles of pharmacology and action of the major respiratory drugs. In addition, the anatomy and physiology of the autonomic nervous system and its role in drug action will be covered. Drugs will be studied as groups and individually for site and mechanism of action, contraindications and side effects, clinical uses and routes of administration. Focuses on the drugs and drug groups that are administered by respiratory therapy personnel, or those that play a role in the care of cardiopulmonary patients.
Course Credit	2 Units Lecture
Contact Hours	2 lecture hours per week
Prerequisite	Chemistry
Placement	Third year Second semester
Course Objectives	At the end of this course, the student will be able to: 1. List down and identify drugs used in respiratory care. 2. Explain the rationale of aerosol therapy and cite its advantages / disadvantages. 3. Enumerate the different respiratory care medications and explain their corresponding mechanism of action and hazards/ complications.
Course Outline	I. Pulmonary Pharmacology a. Respiratory Disease and Systemic Medications b. Respiratory Disease and Medication Administered by Aerosol Inhalation II. Drug Delivery to the Lungs a. Advantages & Disadvantages of Inhalation Therapy b. Principles of Aerosol Penetration and Deposition c. Types Aerosol Delivery Devices III. Oxygen Therapy and Toxicity a. Indications for Oxygen Therapy

	b. Methods of Oxygen Administration c. Assessment of Adequacy of Oxygen Treatment d. Hazards of Oxygen Therapy IV. Respiratory Stimulants and Depressants a. Control of Ventilation b. Respiratory Stimulants c. Respiratory Depressants V. Drugs Which Influence Cough, Mucus and Ciliary Function a. Physiology and Evaluation of Patient with Cough b. Antitussive Agents c. Drugs Acting on Mucociliary Function VI. Bronchodilators a. Beta-Adrenergic Agonists b. Methylxanthines c. Anticholinergic Agents VII. Drugs Which Affect Chemical Mediators in the Lungs a. Chemical Mediators: Release and Effects in the Lungs b. Drugs Affecting Chemical Mediators VIII. Corticosteroid Therapy a. History and Development b. Basic Structure and Chemistry of Corticosteroids c. Anti-inflammatory and Anti-allergic Effects d. Pharmacology of Corticosteroids e. Inhaled Topically Active Corticosteroids f. Adverse Effects of Corticosteroids IX. Treatment for Pneumonia a. Diagnostic Features of Pneumonia b. Goals of Treatment c. Treatment d. Prophylaxis X. Treatment for Chronic Bronchitis and Emphysema a. Diagnostic Features of CB and Emphysema b. Goals of Treatment c. Treatment d. Future Developments XI. Respiratory Failure Therapy a. Pathophysiological Mechanisms of Respiratory Failure b. Management i. Treatment of Precipitating Events ii. General Supportive Measures iii. Controlled Oxygen Therapy iv. Pharmacological Interventions v. Mechanical Ventilation XII. Tuberculosis Treatment a. Diagnostic Features of Tuberculosis b. Goals of Treatment c. Rationale of Chemotherapy of Tuberculosis d. Drugs and Regimens e. Management of Drug-Resistant Tuberculosis

	f. Chemoprophylaxis of Tuberculosis XIII. Treatment for Pulmonary Hypertension a. Diagnostic Features of Primary and Secondary Pulmonary Hypertension b. Goals of Treatment c. Treatment XIV. Adult Respiratory Distress Syndrome Treatment a. Definition and Diagnosis of ARDS b. Goals of Treatment c. Mechanical Ventilation d. Non-Ventilatory Aspects of Supportive Care e. Drug Treatment of ARDS XV. Treatment for Adult Asthma a. Etiology b. Diagnostic Features c. Treatment d. Management of Acute Severe Asthma e. Special Problems i. Nocturnal asthma ii. Occupational asthma XVI. Adverse Effects of Drugs on the Lungs a. Risk Factors for drug-induced pulmonary disease
Textbook	Drug Use in Respiratory Disease Edited by J.D. Wilson Principles of Pharmacology for Respiratory Care by Bills Respiratory Care Pharmacology by Rau

Course Name	**Principles of Neonatal/Pediatric Respiratory Care**
Course Description	This course provides an introduction to neonatal and pediatric respiratory care. Topics include fetal development and continuing through assessments of infants including, gestational age, APGAR scoring, and Silverman scoring neonatal and pediatric assessment, airway care and ventilation. Various heart/lung deficiencies will also be discussed as well as treatment modalities.
Course Credit	2 Units Lecture
Contact Hours	2 lecture hours per week
Prerequisite	Principles of Pulmonary Rehabilitation
Placement	Third year Second semester
Course Objectives	At the end of the course, the student will be able to: 1. Discuss the neonatal and pediatric anatomic/physiologic characteristics. 2. List down the roles and functions of a respiratory therapist in a neonatal and pediatric intensive care setting. 3. Perform respiratory care procedures related to neonatal and pediatric setting.
Course Outline	I. Development of The Cardiopulmonary System A. Placental Gas Exchange

	B. Phases Of Lung Development C. Cardiac Development II. Physiologic Development A. Lung Growth B. Transition Period C. Surface Forces and Surfactant D. Mechanics of Ventilation E. Ventilation III. Patient Assessment A. Evaluation Of Neonatal Patient B. Evaluation Of Pediatric Patient IV. Radiographic Evaluations A. Patient Position & Beam Projection B. Tube Positions C. Extra-Alveolar Air D. Intrathoracic Fluid Collections V. Neonatal Parenchymal Diseases A. Neonatal Respiratory Distress Syndrome B. Aspiration Syndromes C. Bronchopulmonary Dysplasia & Neonatal Chronic Lung Disease D. Transient Tachypnea Of The Newborn E. Pulmonary Hemorrhage F. Neonatal Pneumonias VI. Pediatric Parenchymal Diseases A. Infectious Pneumonitis B. Acquired Immune Deficiency Syndrome C. Cystic Fibrosis D. Non-Infectious Pneumonitis E. Smoke Inhalation Injury F. Hydrocarbon Aspiration G. Chlorine Inhalation VII. Obstructive Airway Diseases In Infants & Children A. Pathophysiologic Effects Of Airway Obstruction B. Obstructive Diseases Of Upper Airway C. Obstructive Diseases Of Lower Airway D. Surgical Lesions Of Pediatric Airways & Lungs E. Lesions Of Pediatric Airway F. Lesions Of The Lung parenchyma VIII. Congenital Heart Diseases (CHD) A. Fetal Circulation B. Classification & Presentation C. Effects On Pulmonary Function & Management D. Use Of Prostaglandin In Treatment Of CHD & It's Effect On Respiratory Care E. Effects Of Surgical Intervention On Respiratory Care F. Ductal Closure & It's Effect On Respiratory Care IX. Sudden Infant Death Syndrome (SIDS) & Apnea Syndromes A. SIDS B. Apnea Syndrome

	X. Care Of Neurologically-Injured Child A. Head Injury B. Reye's Syndrome C. Neuromuscular Diseases Of Children D. Chest Physical Therapy E. Mechanical Ventilation XI. Acute Respiratory Distress Syndrome (ARDS) In Children A. Definition B. Incidence C. Etiology D. Clinical Features E. Pathology F. Physiology G. Mechanisms Of Lung Injury H. Management I. Monitoring & Fluid Administration J. Drug Therapy K. Investigational & Extraordinary Therapies L. Complications M. Infection N. Nutrition O. Outcome XII. Neonatal & Pediatric Oxygen Therapy A. Humidification B. Humidifiers C. Aerosols D. Oxygen Hoods E. Cannulae & Catheters F. Oxygen Masks G. Tents H. Incubators I. Oxygen Blenders & Analyzers J. Resuscitators K. Hyperbaric Oxygen For Pediatric Patients XIII. Pharmacology A. Maternal Medications B. Aerosolized Medications C. Medications For Control Of Ventilation D. Medications For The Treatment Of Infections E. Corticosteroids F. Prostaglandin-Related Drugs G. Medications Used In Resuscitation XIV. Continuous Positive Airway Pressure (CPAP) & Bi-Level Positive Airway Pressure (Bi-PAP) A. Definition B. Physiology C. Applications D. Hazards E. Systems F. Devices XV. Airway Care & Chest Physiotherapy in Neonatal and Pediatric Patients A. Endotracheal Intubation B. Tracheostomy Care

	C. Extubation D. Suctioning E. Chest Physiotherapy XVI. Arterial Blood Gas Analysis & Other Cardio-Pulmonary Monitoring A. Blood Gas Interpretation B. Invasive Blood Gas Sampling C. Non-Invasive Blood Gas Monitoring XVII. Mechanical Ventilation A. Neonatal Ventilation a. Indications b. Time Constants c. Ventilator Parameter Management d. High-Frequency Ventilation e. CPAP f. Weaning B. Pediatric Ventilation a. Indications b. Ventilator Parameter Management c. Pressure Support d. Negative –Pressure Ventilation e. Weaning f. Hazards Of Mechanical Ventilation XVIII. Mechanical Ventilators A. Neonatal Mechanical Ventilators B. Pediatric Mechanical Ventilators XIX. Transport A. Regionalization B. Transport Team Composition a. U.S. Set-Up b. Philippine Set-Up C. Modes Of Transportation D. Stabilization E. Conditions Requiring Transport Of Older Children F. Equipment XX. Novel Modalities A. High-Frequency Ventilation B. Negative-Pressure Ventilation C. Apneic Ventilation D. Liquid Ventilation E. Percutaneous Ventilation F. Extra-Corporeal Membrane Oxygenation (ECMO) G. Surfactant Replacement Therapy XXI. Home Care A. Discharge Process B. Therapeutic Procedures C. Ventilator-Dependent Patients
Textbook	Neonatal & Pediatric Respiratory Care by Koff Comprehensive Perinatal & Pediatric Respiratory Care by Whitaker Respiratory Care Equipment by McPherson

Course Name	**Principles of Pulmonary Physiology in the ICU**
Course Description	Focuses on patient management and increases the application of problem base learning through the use of selected case studies in respiratory disease. Critical thinking and decision making skills are reinforced. Provides units on electrocardiography, critical care drugs, cardiac disease, and respiratory intensive care.
Course Credit	3 Units Lecture
Contact Hours	3 lecture hours per week
Prerequisite	Patient Assessment; Principles of Pulmonary Rehabilitation
Placement	Third year Second semester
Course Objectives	At the end of the course, the student will be able to: 1. Discuss the conduction of cardiac impulse through the different structures of the heart. 2. Explain the importance of the electrocardiogram and its limitations. 3. Recognize normal / abnormal ECG tracings and recommend appropriate course of action. 4. List down the different laboratory tests and state their corresponding reference values. 5. Explain the importance of clinical laboratory tests. 6. Enumerate and discuss the steps involved in the patient management process. 7. List down the general patient information that should be gathered and evaluated. 8. Discuss importance of assessing the ventilation, oxygenation, and work of breathing in critically-ill patients. 9. Identify / interpret hemodynamic data and ventilator graphic waveform. 10. Discuss the process involved in managing the patient-ventilator system.
Course Outline	I. Electrocardiography A. The Electrocardiogram 1. Basic Principles of Electrophysiology 2. The Conduction System 3. Basic ECG waves 4. Interpreting the ECG II. Clinical Laboratory Tests A. Complete Blood Count (CBC) B. Blood Chemistry Tests C. Microbiology Tests D. Sputum and Alveolar Fluid Examinations III. Monitoring and Management of the Patient in the ICU A. General Principles of Monitoring B. General Patient Assessment C. Physiologic Monitoring D. Assessment of Hemodynamics E. Management of the Patient-Ventilator System

Textbook	Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller Basic Clinical Lab Competencies for Respiratory Care by White Equipment Theory for Respiratory Care by White Respiratory Care Equipment by McPherson

Course Name	**Mechanical Ventilation**
Course Description	Emphasis on the technical components of mechanical ventilators, their classification, principles of operation, attachments, and the flow/pressure/volume curves generated by various ventilators, compliance, and resistance. An introduction to the management of patients receiving mechanical ventilation will be presented.
Course Credit	4 Units (3 units Lecture ; 1 unit Lab)
Contact Hours	3 lecture hours ; 3 laboratory hours per week
Prerequisite	Fundamentals of Respiratory Therapy
Placement	Third year Second semester
Course Objectives	At the end of the course the student will be able to: 1. Enumerate and discuss the different indications for mechanical ventilation. 2. List down the different modes for initiating mechanical ventilation and cite their advantages and disadvantages. 3. Analyze clinical data and recommend ventilator parameter adjustments based on these data. 4. Perform pulmonary mechanics monitoring and interpret collected data. 5. Differentiate the different methods for weaning and liberation from ventilatory support.
Course Outline	I. Respiratory Failure and the Need for Ventilatory Support II. Indications for Ventilatory Support A. Parameters Indicating the Need for Ventilatory Support III. Mechanisms of Hypercapneic Respiratory Failure B. Decreased Ventilatory Drive C. Respiratory Muscle Fatigue & Weakness D. Increased Work of Breathing IV. Special Considerations during Ventilatory Support V. Modes of Mechanical Ventilation VI. Initiating and Adjusting Ventilatory Support VII. Ventilatory Support Strategy for Different Causes of Respiratory Failure VIII. Monitoring and Management of the Patient in the ICU A. General Principles of Monitoring 1. Data Collection, Analysis, & Decision-Making B. General Patient Assessment C. Physiological Monitoring D. Measurement of Respiratory Mechanics

	E. Management of the Patient-Ventilator System i. Components of a Patient-Ventilator System ii. Routine checks iii. Documenting the Physician's orders iv. Verifying Proper Ventilator Operation v. Hazards and Complications vi. Assessing Flow, Volume, and Pressure Waveforms vii. Troubleshooting viii. Transporting Patients Receiving Ventilatory Support IX. Liberation from Ventilatory Support A. Categories for Discontinuing Ventilatory Support B. Reasons for Ventilator Dependence C. Ventilatory Workload, or Demand D. Ventilatory Capacity E. Discontinuing Ventilatory Support 1. Patient Evaluation 2. Preparing the Patient 3. Optimizing the Patient's Medical Condition 4. Methods of Discontinuing Ventilatory Support 5. Common Methods 6. Newer Techniques 7. Others Techniques 8. Selecting an Approach 9. Monitoring the Patient during Weaning 10. Extubation/Liberation 11. Chronically Ventilator-Dependent Patients 12. Terminal Weaning Laboratory I. Mechanical Ventilator Preparation II. Initiation of adult Mechanical Ventilation III. Mechanical Ventilator Mode Modification IV. Monitoring and Maintenance of Continuous Mechanical Ventilation V. Continuous Positive Airway Pressure (CPAP) VI. Measurement of Effective Dynamic Compliance, Effective Static Compliance and Airway Resistance VII. Positive-End Expiratory Pressure VIII. Ventilator Weaning VIII. Basic Trouble-Shooting
Textbook	Egans Fundamentals of Respiratory Care by Wilkins Basic Clinical Lab Competencies for Respiratory Care by White Laboratory Exercises in Respiratory Care by Grady Equipment Theory for Respiratory Care by White Respiratory Care Equipment by McPherson

Course Name	**Ventilation & Gas Exchange Monitoring**
Course Description	This course will present concepts of ventilation and gas exchange monitoring which the respiratory therapist performs or assists physicians in performing. Theory, application, and equipment for diagnosing respiratory pathologies through the diagnostic concepts used in respiratory therapy are part of this course.
Course Credit	3 Units (2 units Lecture ; 1 unit Lab)
Contact Hours	2 Lecture hours ; 3 laboratory hours per week
Prerequisite	Principles of Pulmonary Rehabilitation
Placement	Third year Second semester
Course Objectives	At the end of the course, the student will be able to: 1. Discuss the clinical importance of monitoring ventilation and gas exchange. 2. Obtain blood gas sample through proper arterial puncture and interpret the corresponding result. 3. Explain the importance of maintaining quality control in blood gas analyzers.
Course Outline	I. Physiology of Respiration A. Defining Respiration 1. External Respiration 2. Internal Respiration 3. Cellular Respiration II. Respiratory Acid-Base Balance A. Carbon Dioxide Transport B. CO2 Excretion C. Ventilation III. Arterial Oxygenation A. Hemoglobin B. Bohr and Haldane Effects C. Hemoglobin Dissociation Curve D. Physiology of Arterial Oxygenation E. Pathophysiologic Mechanisms of Hypoxemia F. Cardiopulmonary Compensation for Hypoxemia IV. Reference Ranges and Interpretive Guidelines V. Clinical Approach to Interpretation VI. Assessment of Lung as an Oxygenator VII. Assessment of Cellular Oxygenation VIII. Deadspace Ventilation A. Classification of Deadspace Ventilation B. Assessment of Deadspace Ventilation IX. Deadspace and Shunt Producing Pathology A. Guidelines for Acute Deadspace- Producing Pathology B. Guidelines for Acute Shunt Producing Pathology X. Hypoxemia and Oxygen Therapy

	XI. Carbon Dioxide Stores A. Alterations in Central CO2 stores B. Alterations in Peripheral CO2 stores XII. Capnography A. Normal Capnogram B. Abnormal Capnogram C. Relationship of End –Tidal and Arterial PCO2 Levels D. Clinical Monitoring of End –Tidal PCO2 XIII. Continuous Oximetry XIV. Transcutaneous Gas Monitoring XV. Blood Gas Monitors XVI. Obtaining Blood Gas Sample XVII. Blood Gas Analyzers XVIII. Quality Assurance in Blood Gas Analysis XIX. Oximetric Measurement XX. Technical Considerations in O2/ CO2 Measurements
Textbook	Clinical Application of Blood Gases by Shapiro Basic Clinical Lab Competencies for Respiratory Care by White Laboratory Exercises in Respiratory Care by Grady Respiratory Care Equipment by McPherson

Course Name	**Microbiology**
Course Description	This subject deals with basic principles of microbiology and the different types of pathogens related to pulmonary medicine. Focus is given to mode of entry of these pathogens and the body's natural defense mechanism. Special emphasis is given to different decontamination procedures related to respiratory care.
Course Credit	4 Units (3 units Lecture; 1 unit lab)
Contact Hours	3 Lecture hours ; 3 laboratory hours per week
Prerequisite	Health Care
Placement	Third year Second semester
Course Objectives	At the end of the course, the student should be able to: 1. Recognize the different kinds of microorganisms specially those that are related to the practice of respiratory care. 2. Describe the basic laboratory equipment. 3. Perform staining, isolating, and culture procedures in the study of bacteria. 4. Practice aseptic techniques in handling microbiological samples.

Course Outline	Lecture Outline I. Spread of Infection A. Source, Host, and Transmission Route B. Infection Control Strategies 1. Decreasing Host Susceptibility 2. Eliminating the Source of Pathogens 3. Interrupting Routes of Transmission II. Equipment Processing A. Cleaning B. Disinfection C. Sterilization III. Equipment Handling Procedures A. Maintenance of In-Use Equipment B. Processing Reusable Equipment C. Disposable Equipment D. Fluids & Medications Precautions IV. Barrier Measures and Isolation Precautions and Procedures A. General Barrier Measures/Universal Precautions B. Isolation Precautions V. Surveillance A. Equipment Processing Quality Control B. Sampling of In-Use Equipment C. Microbiological Identifications Laboratory Outline I. Introduction A. Relevance of Microbiology to the Health Professions B. Definition & History of Microbiology C. Areas of Microbiology D. Koch's Postulate E. Types of Microscopes II. Diversity of Microorganisms A. Classification of Bacteria B. Rickettsia, Chlamydia, and Mycoplasma C. Bacterial Diseases D. Pathogenic Protozoa E. Fungi F. Viruses III. Collection and Handling of Specimen A. Preparation of Culture Media B. Microbes in the Environment C. Aseptic Technique of Transferring Bacteria D. Obtaining Pure Culture of Bacteria IV. Differential Staining A. Gram Staining B. Acid – Fast Staining C. Special Stains (Endospores & Capsule) D. Morphologic Unknown

	IV. Biochemical Test A. Sulfide Indole Motility Medium B. Triple Sugar Iron C. Lysine Iron Agar D. Urease Test E. IMVIC Reaction F. Other Biochemical Tests V. Antimicrobial Sensitivity Test
Textbook	Egans Fundamentals of Respiratory Care by Wilkins Microbiology for the Health Sciences by Burton, Engelkirk Forbes, " Bailey and Scott Diagnostic Microbiology 11th ed. s 2002 Delost, Maria D., Introduction to Diagnostic Microbiology : A Text and Workbook , 1997

Course Name	**ICU Crisis Management**
Course Description	The subject deals with respiratory emergencies and their corresponding course of action to correct/alleviate patient status in the intensive care unit. Invasive and non-invasive techniques of patient monitoring are also discussed.
Course Credit	1 unit Lecture
Contact Hours	1 lecture hour per week
Prerequisite	Mechanical Ventilation; Principles of Pulmonary Physiology in the ICU
Placement	Fourth year First semester
Course Objectives	At the end of the course, the student will be able to: 1. Discuss the philosophy and principles of critical care. 2. Enumerate the common problems encountered in critical care practice and discuss their corresponding interventions. 3. Recall major diagnostic features, concise descriptions of disease processes and practical management strategies. 4. Enumerate and discuss the different critical care scoring system and explain their importance in critical care practice. 5. Discuss ethical Issues in Critically-ill patients
Course Outline	I. Philosophy & Principles of Critical Care A. Early identification of problems B. Effective use of the problem-oriented medical record C. Monitoring & Data display D. Supportive & preventive care E. Attention to psychosocial & other needs of the patient F. Understand the limits of critical care G. Role of the Medical Director of the ICU 1. Protocols & Practice Guidelines 2. Quality Assurance 3. Infection Control 4. Education 5. Communication

	6. Outcomes & Alternatives H. Critical Care Scoring 1. Glasgow Coma Scale 2. Trauma Score & Revised Trauma Score 3. CRAMS Scale (Circulation, Respiration, Abdomen, Motor, Speech) 4. In jury Severity Score (ISS) 5. Acute Physiology, Age, Chronic Health Evaluation (APACHE III) II. Fluids, Electrolytes, & Acid-Base A. Fluid & Electrolyte Disorders 1. Fluid Volume 2. Disorders of Water Balance 3. Disorders of Potassium Balance 4. Disorders of Phosphorus Balance 5. Disorders of Magnesium Balance 6. Disorders of Calcium Balance B. Acid-Base Homeostasis & Disorders 1. Metabolic acidosis 2. Metabolic alkalosis 3. Respiratory acidosis 4. Respiratory alkalosis IIV. Shock & Resuscitation A. Hypovolemic Shock B. Distributive Shock C. Anaphylactic Shock & Anaphylactoid Reactions D. Neurogenic Shock E. Cardiac Shock F. Cardiac Compressive Shock IV. Respiratory Failure A. Hypercapneic Respiratory Failure B. Hypoxemic Respiratory Failure C. Oxygen Delivery & Tissue Hypoxia D. Treatment of Acute Respiratory Failure E. Acute Respiratory Failure from Specific Disorders V. Infections in Critically Ill A. Sepsis B. Community-Acquired Pneumonia C. Urosepsis D. Infective endocarditis E. Necrotizing Soft Tissue Infections F. Intra-abdominal Infections G. Infections in Special Hosts 1. The Neutropenic Patient 2. Organ Transplant Recipients 3. Asplenic Patients 4. The Patient on Chronic Corticosteroid Therapy 5. Patient with Diabetes Mellitus H. Principles of antibiotic use in the ICU I. Evaluation of the ICU Patient with New Fever J. Nosocomial Pneumonia K. Urinary Catheter-Associated Infections L. Intravenous Catheter-Associated Infections M. Abdominal Compartment Syndrome N. Other Infections in the ICU

	VI. Bleeding & Hemostasis A. Normal Hemostasis & Laboratory Evaluation B. Coagulation Disorders C. Platelet Dysfunction D. Thrombocytopenia E. Approach to the Bleeding Patient VII. Care of the Geriatric Patient A. Physiologic Changes with Age B. Management of the Geriatric Patient in the ICU 1. Drug therapy 2. Hydration & Nutrition 3. Special Considerations C. Communicating with the Elderly Patient VIII. Cardiac Problems in Critical Care A. Congestive Heart Failure B. Valvular Heart Disease C. Cardiac Tamponade D. Hypertensive Crisis & Malignant Hypertension E. Complications of Cardiac Catheterization F. Aortic Dissection G. Cardiac Arrhythmias 1. Atrial 2. Ventricular H. Cardiac Problems During Pregnancy IX. Pulmonary Disease A. Status Asthmaticus B. Life-Threatening Hemoptysis C. Deep Venous Thrombosis & Pulmonary Thromboembolism D. Anaphylaxis E. Angioedema X. Ethical & Legal Considerations A. Ethical Principles B. Conflicts Between Ethical Principles C. Ethical Decision-Making D. Medico-Legal Aspects of Decision making E. Withholding & Withdrawing Life Support F. Role of the Health Care Professional
Textbook	Current Critical Care – Diagnosis & Treatment by F. Bongard, D. Sue Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller Clinical Assessment in Respiratory Care by Wilkins *Health Ethics Book*

Course Name	**Test of Pulmonary Function & Structure**
Course Description	This course will present concepts of pulmonary function testing and other cardiopulmonary diagnostic procedures which the respiratory therapist performs or assists physicians in performing. Theory, application, and equipment for diagnosing respiratory pathologies through the diagnostic concepts used in respiratory therapy.
Course Credit	3 Units (2 unit Lecture ; 1 unit Lab)

Contact Hours	2 Lecture hours ; 3 laboratory hours per week
Prerequisite	Fundamentals of Respiratory Therapy
Placement	Third year Second semester
Course Objectives	At the end of the course, the student will be able to: 1. Discuss the importance and the different indications for pulmonary function testing. 2. Enumerate the different types of equipment used in PFT and cite their advantages and disadvantages. 3. List down and explain the rationale for the safety precautionary measures observed during PFT procedures.
Course Outline	I. Equipment for Volume and Flow Measurement A. Volume/Flow Measuring Instruments B. Pletysmographs C. Directional Breathing Valves and Directional Control Valves D. Display/Recording Instruments II. Test for Pulmonary Volumes and Ventilation A. Pulmonary Volumes and Ventilation B. Direct Spirometry and Impedance Pletysmography C. Indirect Spirometry/Body Pletysmography/ Gas Dilution D. Radiologic Estimation of Lung Volume E. Interpretation of Pulmonary Volumes and Ventilation III. Test for Pulmonary Mechanics A. Forced Vital Capacity Maneuver B. Low Density Gas Spirometry C. Maximum Voluntary Ventilation D. Airway Resistance/Conductance E. Compliance F. Maximum Inspiratory/Expiratory Pressures IV. Test for Pulmonary Gas Distribution and Matching with Perfusion A. Deadspace Ventilation B. Distribution of Ventilation C. Ventilation Perfusion Scan D. Multiple Gas Elimination E. Radionuclide Scan F. High Resolution CT Angio V. Test for Pulmonary Gas Diffusion A. Test Description B. Techniques for Measurement C. Equipment Required D. Test Administration E. Interpretation of Test Results VI. Predicted Normal Values for Pulmonary Function Tests A. Factors Affecting Predicted Normal Values B. Sources of Predictive Equations for Normal PFT Values C. Using Predictive Equations for Normal PFT Values

	VII. Computers in Pulmonary Function Testing A. Hardware Terms B. Data Terms C. Software /Programming Terms D. General Operation of Computers E. Computer Application to PFT F. General Concerns VIII. Pulmonary Function Testing regimens A. Patient Assessment for PFT B. General Administration of PFT C. Bronchodilator Benefit Studies D. Pre-operative PFT Studies E. Bronchoprovocation Studies F. Studies for Exercise-Induced Asthma G. Studies to Document Impairment/Disability IX. Quality Assurance for PFT A. Components of a Quality Assurance Process B. Calibration and Quality Control for Spirometers and Pletysmographs X. Administrative Functions in a Pulmonary Laboratory A. Duties and Responsibilities of a Respiratory Care Manager
Textbook	Pulmonary Function Testing and Cardiopulmonary Stress Testing by Madama Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller Equipment Theory for Respiratory Care by White Respiratory Care Equipment by McPherson

Course Name	**Management & Health Care Ethics**
Course Description	The subject provides information regarding the following: (a) different organizational structures of Respiratory Care Department (b) different management and supervision styles (c) personnel selection and staff education (d) inter-departmental relationships (e) evaluation and maintenance of respiratory care quality standards (f) departmental resources management (g) ethical standards
Course Credit	2 Units Lecture
Contact Hours	2 lecture hours per week
Prerequisite	Health Care
Placement	Fourth year First semester
Course Objectives	At the end of the course, the student will be able to: 1. List down the elements of a hospital-based respiratory care program and discuss the function of each. 2. Discuss the importance of peer review organizations in relation to quality respiratory care 3. Discuss how ethical dilemmas arise in the healthcare. 4. Explain how professional codes of ethics apply to ethical decision making. 5. Enumerate the information that should be gathered before making an ethical decision.

	6. Explain how the systems of civil and criminal law differ. 7. Discuss what constitutes professional malpractice and negligence.

Course Outline	I. Management A. Elements of Hospital-Based Respiratory Care Program 1. Medical Direction 2. Respiratory Care Protocols 3. Respiratory Care Practitioners a. Designations and Credentials 4. Technical Direction B. Monitoring Quality Respiratory Care 1. Peer Review Organizations C. Effect of New Patient Care Delivery Models on the Quality of Respiratory Care 1. Hospital Restructuring and Redesign 2. Patient-Focused Care 3. Protocols II. Ethical and Legal Implications of Practice A. Ethical Dilemmas in Practice 1. Codes of Ethics 2. Ethical Theories and Principles 3. Ethical Viewpoints and Decision Making B. Legal Issues Affecting Respiratory Care C. Interaction of Ethics and the Law D. Healthcare and Change
Textbook	Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller *Book on Medical Ethics* PCCP Handbook on Terminal Care

Course Name	**Respiratory Care Seminar 1**
Course Description	The subject covers the topics regarding the application of the most recent innovations in Respiratory Care in the treatment cardiopulmonary impaired patients focusing on cases commonly encountered in the hospitals. Special emphasis is given on the different respiratory care protocols.
Course Credit	2 Units Lecture
Contact Hours	2 lecture hours per week
Prerequisite	Principles of Pulmonary Physiology in the ICU ; Mechanical Ventilation
Placement	Fourth year First semester
Course Objectives	At the end of the course, the student will be able to: 1. List down the general respiratory care services offered by a respiratory therapy department and the new equipment /modalities used in such services. 2. Explain the importance of adherence to quality by following and implementing respiratory care protocols.
Course Outline	Routine Respiratory Care Protocols

	I. Oxygen Therapy II. Oximetry III. Prophylaxis for Pulmonary Complications IV. Secretion Management V. Secretion Management for Artificial Airways VI. Autogenic Drainage VII. Metered-Dose Inhaler VIII. Small Volume Nebulizer (SVN) IX. Therapeutic Effective Dosage X. Acute Maximum Dosage XI. Intermittent Positive Pressure Breathing (IPPB)
Textbook	University of California San Diego Respiratory Care Department Patient Driven Protocols AARC Clinical Practice Guidelines Cleveland Clinic Handbook on Respiratory Care

Course Name	**Clinical Education 1**
Course Description	This practicum applies knowledge and skills learned in co-requisite courses to patients in the clinical setting. It continues to build on competencies and skills acquired in previous semesters. Emphasis is placed on airway care, ventilator management, and a rotation through a pulmonary function lab. Presented at one or more of the program's clinical affiliates.
Course Credit	15 Units (Hospital Internship)
Contact Hours	750 hours
Prerequisite	All Third Year 2nd Semester Subjects
Placement	Fourth year First semester
Course Objectives	1. Enhance the knowledge, attitudes and skills in the performance of clinical pulmonary care procedures essential to the practice of Respiratory Therapy needed to help the physician in the proper diagnosis, treatment and prevention of diseases. 2. Develop leadership skills, competence, in critical and analytical thinking to advance knowledge in Respiratory Therapy and contribute to the challenges of the profession 3. Develop among students a well-rounded personality with a healthy outlook and oriented towards intelligent, ethical and active participation in professional as well as community welfare activities.
Course Outline	See Appendix A
Textbook	Harrison's Principle of Internal Medicine Manual of Medical Therapeutics

	Current Critical Care –Diagnosis and Treatment (Lange)

Course Name	**Advanced Mechanical Ventilation**
Course Description	A continuation of the Mechanical Ventilation course. In-depth study of ventilator management in critical care, long-term care, and the home environment utilizing case studies, and clinical problem based learning sessions. The subject deals with the study of the following: (a) modifications of Inspiratory and expiratory flow patterns (b) reversal of Inspiratory : Expiratory (I:E) ratio during mechanical ventilation (c) non-conventional techniques/methods of ventilatory support- high frequency ventilation and ultra-high-frequency ventilation (d) new generation of mechanical ventilators.
Course Credit	1 Unit Lecture
Contact Hours	1 lecture hour per week
Prerequisite	Mechanical Ventilation
Placement	Fourth year Second semester
Course Objectives	At the end of course, the student will be able to: 1. Enumerate and discuss the conventional techniques of mechanical ventilation. 2. Compare and contrast the conventional with the non-conventional techniques of ventilatory support. 3. Discuss the different types of inspiratory / expiratory waveform and explain their clinical application in mechanical ventilation.
Course Outline	I. The New Generation of Mechanical Ventilators II. Non-Conventional Techniques of Ventilatory Support III. Ventilator Modes: Old & New IV. Strategies to Minimize Breathing Effort During Mechanical Ventilation V. Clinical Use of Inspiratory and Expiratory Waveforms VI. Selection of the Inspiratory :Expiratory Ratio VII. Assessment of Ventilatory Mechanics VIII. New Ventilatory Strategies
Textbook	Clinical Application of Mechanical Ventilation by David Chang Current Respiratory Care by Kacmareck and Stoller Critical Care Clinics – Mechanical Ventilation by Tobin Equipment Theory for Respiratory Care by White Respiratory Care Equipment by McPherson

Course Name	**Hemodynamic Monitoring**
Course Description	The subject deals with the basic principles of pressure measurement in the different major veins/arteries and heart chambers, the basic technological principles in the apparatus and cardiac catheters, the principle of indirect cardiac output measurements, the hazards/complications of cardiac catheterization and it's corresponding preventive aspects, assessment of the patients pulmonary capillary

	wedge pressure and it's correlation with other hemodynamics parameter.
Course Credit	1 Unit Lecture
Contact Hours	1 lecture hour per week
Prerequisite	Principles of Pulmonary Physiology in the ICU
Placement	Fourth year Second semester
Course Objectives	After the completion of this course, the student will be able to; 1. Discuss the clinical importance of monitoring the hemodynamic status of a patient. 2. Identify the hazards and complications associated with hemodynamic monitoring. 3. Analyze and interpret hemodynamic parameters and correlate it with the clinical status of a patient.
Course Outline	I. Invasive and Non-invasive Hemodynamic Monitoring II. Understanding Congestive Heart Failure III. The Pulmonary Circulation a. Pulmonary Capillary Wedge Pressure (PCWP) i. Physiology ii. Increased PCWP 1. Left Ventricular Failure vs. Hypervolemia iii. Decreased PCWP iv. Effect of Positive End Expiratory Pressure (PEEP) on PCWP measurements b. Pulmonary Arterial Pressures i. Pulmonary hypertension ii. Pulmonary vascular resistance iii. Pulmonary Hypotension c. Other Measurements Available with Pulmonary Artery Catheterization i. C(a-v)O2 and cardiac output measurements ii. SvO2 and PvO2 measurements iii. Central Venous Pressure (CVP) / Right Atrial Pressure iv. Elevated CVP IV. Peripheral Circulation a. Arterial Hypertension 1. Chronic Hypertension 2. Acute Hypertension b. Arterial Hypotension (Shock) 1. Decreased cardiac output 2. Decreased peripheral vascular resistance V. Hemodynamics Cases and Discussions
Textbook	Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller Appleton and Lange's Review of Respiratory Care

Course Name	**Respiratory Care Seminar 2**
Course Description	The subject covers the topics regarding the application of the most recent innovations in Respiratory Care in the treatment of cardiopulmonary impaired patients focusing on special cases encountered in the hospitals. Respiratory care protocols lecture & discussion is a major part of this subject.
Course Credit	2 Units Lecture
Contact Hours	2 lecture hours per week
Prerequisite	Respiratory Care Seminar 1
Placement	Fourth year Second semester
Course Objectives	At the end of the course, the student will be able to: 1. List down the critical respiratory care services offered by a respiratory therapy department and the new equipment /modalities used in such services. 2. Explain the importance of adherence to quality by following and implementing respiratory care protocols. 3. Discuss the safety precautionary measures to be used in mechanically-ventilated patients and justify the need for such measures.
Course Outline	Intensive Respiratory Care Protocols I. Extubation II. Post-Op Laparatomy III. Prophylaxis Protocol Addendum for Rib Fracture/Trauma IV. Metered-Dose Inhaler for Ventilated Patients V. Secretion Management for Ventilated Patients VI. Secretion Management Addendum for Ventilated Head Trauma Patients VII. Patient-Ventilator System Checks VIII. Care of the Ventilator Circuit and Its Relation to Ventilator–Associated Pneumonia
Textbook	University of California San Diego Respiratory Care Department Patient Driven Protocols AARC Clinical Practice Guidelines

Course Name	**Clinical Education 2**
Course Description	This practicum applies knowledge and skills learned in co-requisite courses and continue to build on competencies and skills acquired in previous semesters. Emphasis is placed on respiratory intensive care. Specialty rotations are established in neonatal/pediatric facilities. Presented at one or more of the program's clinical affiliates.

Course Credit	15 Units (Hospital Internship)
Contact Hours	750 Hours
Prerequisite	Clinical Education 1
Placement	Fourth year Second semester
Course Objectives	1. Enhance the knowledge, attitudes and skills in the performance of clinical pulmonary care procedures essential to the practice of Respiratory Therapy needed to help the physician in the proper diagnosis, treatment and prevention of diseases. 2. Develop leadership skills, competence, in critical and analytical thinking to advance knowledge in Respiratory Therapy and contribute to the challenges of the profession 3. Develop among students a well-rounded personality with a healthy outlook and oriented towards intelligent, ethical and active participation in professional as well as community welfare activities.
Course Outline	See Appendix A
Textbook	Harrison's Principle of Internal Medicine Manual of Medical Therapeutics Current Critical Care –Diagnosis and Treatment (Lange)

Course Name	**Teaching in HealthCare Setting**
Course Description	Theoretical aspects of providing respiratory therapy at alternate sites. Includes components of home respiratory therapy, extended care units, long term care facilities, ventilator rehabilitation centers, physician offices, land/air transport, and outpatient diagnostic clinics. Introduces the fundamentals of teaching and learning theories.
Course Credit	1 Unit Lecture
Contact Hours	1 lecture hour per week
Prerequisite	Management & HealthCare Ethics
Placement	Fourth year Second semester
Course Objectives	After completion of this course, the student will learn: 1. How to write learning objectives, in the cognitive, affective, and psychomotor domains. 2. How to develop and implement a lesson plan 3. Why teaching children presents special challenges. 4. How to evaluate patient education. 5. Why health education is important. 6. How to categorize health promotion and disease prevention activities 7. How health promotion and disease prevention affect medical costs.
Course Outline	I. Patient Education A. Learning Domains 1. Cognitive 2. Affective

	3. Psychomotor B. Developing a Lesson Plan C. Teaching Tips 1. The Teachable Moment D. Caregiver Education E. Practical Guidelines II. Health Education III. Health Promotion & Disease Prevention A. Vaccination B. Smoking Cessation C. Nutritional D. Exercise IV. Implications for Respiratory Care Practitioners A. Healthcare Institutions B. Work site C. Home D. Community E. Educational Institutions
Textbook	Egan's Fundamentals of Respiratory Care by Scanlan, Wilkins, Stoller

Article VII
OTHER REQUIREMENTS

SECTION 9 Program Administration

Dean:

The Respiratory Therapy School/Department shall be administered by a full-time dean/head with the following qualifications:

1. A Filipino citizen of good moral character
2. A Doctor of Medicine who is a certified pulmonologist by the Philippine College of Chest Physicians (PCCP) or the Philippine Association of Pediatric Pulmonologists (PAPP)

-or-

3. A graduate of Bachelor of Science in Respiratory Therapy with a Master's degree preferably in Health Sciences Education, Educational Administration or any related discipline;
4. At least five (5) years of very satisfactory teaching experience (Respiratory Therapy professional courses) and must have at least 3 year managerial experience in school management.

The general functions and responsibilities of the Dean shall:

1. Administers general policies and rules and regulation of the Respiratory Therapy
2. Exercises educational leadership among Respiratory Therapy faculty members
3. Shall have a maximum of twelve (12) units of teaching load and shall render at least twenty (20) hours of administrative services per week, distributed proportionately in the days of the week.

SECTION 10 Faculty

Each faculty member must possess the academic preparation appropriate to his teaching assignments, faculty members handling professional respiratory courses must have a degree in respiratory therapy.

1. **Interim guidelines beginning the 3 years after approval off this set of Policies and Standards:**

    1.1 Enrolled in a Master's program preferably in Health Sciences Education, Educational Administration or a related discipline to be completed within three years from date of first enrollment
    1.2 Minimum of one (1) year clinical experience

2. **Guidelines beginning the 6th years after approval of this set of Policies and Standards:**

    2.1. Master's degree or at least 18 units in a Master's program preferably in Health Sciences Education, Educational Administration or a related disciplines
    2.2. Minimum of three (3) years clinical experience

A full-time faculty member shall have a maximum of thirty (30) hours of teaching load per week not to exceed four (4) preparations.

When a vacancy occurs in the teaching force of the college during the school year, a substitute or a replacement with similar qualifications should be employed.

SECTION 11 Faculty Development Program.

For an effective operation of the school, institute, college or university offering Respiratory Therapy, there should be a faculty development program to improve the profession. This program shall be carried out through:

a. Scholarship grants to faculty members
b. Educational loans or tuition fee discounts to faculty members enrolled in the graduate school
c. Subsidized attendance in continuing education programs, conferences, professional and scientific meetings, etc.
d. Thru the improvement of the Respiratory Therapy profession encouragement and support to faculty members to conduct research.
e. Thru continuing faculty and staff development.

SECTION 12 LIBRARY

a. Every college/ university offering the Respiratory Therapy program shall have adequate library resources relevant to Respiratory Therapy adequate in quantity, which shall serve the needs of the students and shall be in accordance with the college's / university 's development and expansion plans. A well developed Respiratory Therapy library whether established separately

or as a section in a general library shall be clearly defined as Respiratory Therapy collection.

b. **Librarian** –a full-time licensed librarian, preferably with MS in Library Science shall be assigned to manage the library.

c. Library Holdings

The library shall be open at least eight (8) hours a day on school days.
The institution offering the Respiratory Therapy program shall assure the availability of at least two (2) titles of each current edition of Respiratory Therapy books, pamphlets, monographs and serials specifically used as basic reference reading materials for each Respiratory Therapy major course.

To update the students and faculty members with the latest developments in the profession, a regular subscription to a minimum of two (2) international journals (American Association for Respiratory Care (AARC) Journal & American Review of Respiratory Diseases)and two (2) local journals (Chest Journal) as well as Health Science periodicals shall be maintained.

The institution offering the Respiratory Therapy program has the freedom to select the basic textbooks to be used by the students in all the subjects specified in the curriculum. However, the library facility of the institution shall have at least one (1) copy of each of these textbooks for every twenty five (25) students enrolled in the class. There shall be appropriate materials and equipment such as computer with internet access and CD ROM's, etc.

SECTION 13 FACILITIES AND EQUIPMENT

Laboratory Requirements

The institution shall provide fully equipped laboratory facilities for adequate instruction.

A laboratory room shall have two (2) exits and a minimum floor space of one square meter for every 1-2 students and a locker for every 1-5 students. Rooms shall be well lighted and well ventilated.

Each laboratory room shall provide:

a. A continuous and adequate supply of water, gas and electricity
b. Readily accessible safety devices/first aid facilities
   - Fire extinguisher
   - Emergency shower
   - First aid kit/cabinet
   - Safety posters
   - Exhaust system and/or fume hoods
   - Acid resistant laboratory table tops

c. The institution shall provide the requirements for the following laboratories:

   1. Chemistry (General, Analytical, Organic, Biochemistry)
   2. Biological Sciences (Botany, Zoology, Anatomy and Physiology)
   3. Physics
   4. Microbiology (Bacteriology, Mycology)
   5. Respiratory Therapy Simulation

The institution shall provide appropriate and safe waste disposal system.

List of Laboratory Facilities - See Appendix B

SECTION 14 Admission, Selection and Retention Requirements

The applicant for admission to a degree course in Respiratory Therapy, must have:

1. must have graduated from a general secondary course from a school authorized by the Department of Education;
2. satisfactorily complied with the admission, selection and retention requirements conducted by the school and should be reflected in the student manual/handbook;
3. has never been convicted or found guilty of any criminal offense and/or any misconduct involving moral turpitude.

As a general rule, no applicant shall be enrolled in the Respiratory Therapy course unless he/she presents the required school pertinent documents before the end of the enrolment period.

SECTION 15 Instructional Standards

a. The institution shall maintain a high standard of quality of instruction and comply with policies and standards set by Commission on Higher Education.
b. The institution shall provide for a systematic and continuing plan of evaluation of students' progress through a grading system that is consistent and congruent to the objectives set by the college/university.
c. The Respiratory Therapy education program shall adopt the prescribed textbooks which are of recent edition and which reflect current trends in the Respiratory Therapy profession and which do not violate Philippine laws.
d. The ratio of faculty to students in a laboratory class shall be a maximum of 1:20 and for lecture class a ratio of 1:40
e. The Dean shall make arrangements with the administration to ensure that textbooks adopted for use are sufficiently available in the institution's library for students to use or refer.
f. Schools without their own hospital should have a memorandum of agreement (MOA) of at least five (5) years with their tertiary base hospital (at least with two bed ICU and RT facilities).

ARTICLE VIII
TRANSITORY PROVISION

Higher Education Institutions offering Respiratory Therapy program shall be given three (3) years grace period to comply with the provision specified in this set of policies and standards.

ARTICLE IX
EFFECTIVITY CLAUSE

This set of Policies and Standards for Respiratory Therapy shall take effect beginning school year 2007-2008.

Pasig City, Philippines, February 2, 2007

CARLITO S. PUNO,DPA
Chairman

Appendix A

Clinical Internship Program for B.S. Respiratory Therapy (Total of 1500 hours)

This is the clinical educational/skill development stage for students under Bachelor of Science in Respiratory Therapy program. The student performs respiratory care under the supervision of a licensed pulmonologist/respiratory therapist with the following procedures:

Pulmonary Diagnostics – (500 hours) includes exposure to the following areas:

1. Electrocardiography (ECG)
2. Pulmonary Function Testing (PFT)
3. Arterial Blood Gas Extraction & Analysis (ABG)
4. Hemodynamics Monitoring (where available)
5. Capnography & Pulse Oximetry
7. Clinical Polysomnography (where available)
8. Bronchoscopy (where available)

General Respiratory Care – (500 hours) includes exposure to the following areas

1. Humidity Therapy
2. Medical Gas Therapy (except anesthetics)
3. Oxygen Concentration Monitoring
4. Aerosol Therapy and administration of pharmacologic agents related to respiratory care.
5. Environmental Therapy (Oxygen tents, croup tents, infant oxygen hoods, infant incubators)
6. Lung Expansion Therapy (Intermittent Positive Pressure Breathing Therapy & Incentive Spirometry)
7. Cardiopulmonary Rehabilitation related and limited to respiratory care
8. Sterilization techniques
9. Record keeping (charting, vital signs etc.)

Adult Intensive Care Unit Management (400 hours) includes exposure to the following areas:

1. Airway Management
2. Cardiopulmonary Resuscitation
3. Mechanical ventilation & cardiopulmonary monitoring

Neonatal & Pediatric Critical Care (100 hours) includes exposure to the following areas:

1. Airway management
2. Cardiopulmonary Resuscitation
3. Mechanical ventilation & cardiopulmonary monitoring

Guidelines for
Respiratory Therapy Internship Program

Vision

Respiratory Therapy Internship shall be an academic undertaking recognized in the Philippines and globally accepted. It shall be the minimum standard by which schools measure their performance in terms of respiratory therapy internship development. Emblem of quality shall be competence, ethical values, teamwork, and ability of students to respond to the patients needs in the respiratory care delivery system.

Mission Statement

To provide the country with Respiratory Therapists who are humane and scientifically competent to deliver the full spectrum of respiratory care services needed in modern healthcare for patient safety and welfare.

Description

The Respiratory Therapy Internship is in the fourth year level of Bachelor of Science in Respiratory Therapy course. It is an intensive practical and theoretical training in the different sections in the clinical laboratory namely: Pulmonary Diagnostics, General Respiratory Care, Adult Intensive Care Unit, Neonatal & Pediatric Critical Care Unit, and Sleep Laboratory.

Objectives

The program aims to:

1. Enhance the knowledge, attitudes and skills in the performance of clinical pulmonary care procedures essential to the practice of Respiratory Therapy needed to help the physician in the proper diagnosis, treatment and prevention of diseases.

2. Develop leadership skills, competence, in critical and analytical thinking to advance knowledge in Respiratory Therapy and contribute to the challenges of the profession

3. Develop among students a well-rounded personality with a healthy outlook and oriented towards intelligent, ethical and active participation in professional as well as community welfare activities.

4. Develop humane and competent Respiratory Therapists who are globally competitive and committed to serve the health needs in both local and international communities.

Requirements

1. Only those who completed all the course requirements for the first three years shall be qualified for internship.

2. Applicants shall undergo physical and laboratory examinations which will include complete blood count (CBC), urinalysis, fecalysis, pregnancy test, HBsAg, AntiHBs, and chest x-ray. They are also required to present proof of vaccination against hepatitis-B. Any applicant found positive for infectious disease (hepatitis-B, tuberculosis, etc) shall not be allowed to undergo training unless proof of adequate/complete treatment is submitted.

General Rules

1. The school in coordination with the accredited training center/hospital shall provide a training program in line with the approved CHED rules on Respiratory Therapy Internship Program (RTIP)

2. The school and the training center shall enter into a contract of affiliation.

3. The school shall assign interns only to accredited training centers.

4. The school shall pay the required affiliation fee to the training center.

5. A clinical instructor per hospital per shift with a maximum ratio of clinical instructor to intern of 1:5 per shift shall be provided by the school to:
    a. Monitor intern's individual attendance, behavior, and performance, in coordination with the training respiratory care laboratory both in theoretical and practical application.
    b. Guide interns in readings and application of theoretical knowledge gained from school to actual practice.
    c. Clinical instructors who are part-time faculty of the school should undergo clinical preceptorship training regarding the objectives and the evaluation tools for the clinical rotation.

6. As part of CHED memorandum on Respiratory Therapy Internship Program (RTIP) colleges and universities shall require their interns to attend seminars/scientific symposia relevant to Respiratory Therapy education.

Duties and Responsibilities of Interns

1. Proper Decorum

    The intern shall:

    a. Behave professionally at all times
    b. Serve the patients with compassion
    c. Avoid undue familiarity and intimacy with patients and staff
    d. Handle patient information with utmost confidentiality
    e. Work harmoniously with fellow interns and other personnel of the institution.

2. Attendance and Punctuality

    The intern shall adhere strictly to the policies of the institution and training center on absences and tardiness.

3. Laboratory Breakages

    The intern shall be solely responsible for the payment, replacement or repair of laboratory equipment and/or supplies incurred by them.

Offenses and Sanctions

1. Absences/tardiness incurred during internship shall be given the following sanctions:
    a. For every excused absence, eight (8) hours make-up (1:1 ratio)
    b. For every unexcused absence, twenty-four (24) hours make-up (1:3 ratio)
    c. For accumulated absences exceeding 13 days or twenty percent (20%) of the total number of internship days per hospital rotation (63 days), repeat internship rotation
    d. For unauthorized out-of-post, twenty-four (24) hours make-up

1. Sanction shall be determined by the training center and the institution on the following:
    a. Cheating in any form
    b. Alcohol intoxication
    c. Inflicting physical injury
    d. Carrying of deadly weapon
    e. Possession and/or use of prohibited drugs
    f. Sexual harassment
    g. Vandalism
    h. Willful destruction of hospital property
    i. Gambling
    j. Stealing
    k. Immorality

Responsibilities of the Institution and the Training Center

1. *Responsibilities of the Institution:*

    The institution shall meet the following requirements before applying for affiliation to any clinical laboratory:

    a. provide a clinical instructor experienced in actual laboratory work to monitor individual attendance, behavior, and performance of the interns, in coordination with the training laboratory and to assist the affiliating laboratory in implementing the Respiratory Therapy Internship Program

    b. Ensure that the interns pay or replace damages, breakages, and losses incurred by the interns in Training Center property.

    c. Ensure that the clinical instructors and interns observe and abide with the policies, rules and regulations of the hospital.

2. *Responsibilities of the Training Center*

    a. The training center shall have a pulmonologist accredited by the Phil. College of Chest Physicians (PCCP) or Philippine Association of Pediatric Pulmonologists (PAPP) or a registered Respiratory Therapist as department head by the respiratory care laboratory.

    b. There shall be adequate number of respiratory therapists for each section of respiratory care services offered by the hospital.

    c. The respiratory care laboratory shall have adequate space to accommodate both staff and interns.

    d. The respiratory care laboratory shall have sufficient equipment and supplies based on the volume and type of respiratory care services and number of interns to be trained.

    e. The respiratory care laboratory shall have a written internship training program for Respiratory Therapy Interns.

        e.1. The person responsible for the training shall be a pulmonologist or senior respiratory therapist

        e.2. The program shall provide for an objective measure of evaluation of the baseline skills and knowledge.

        e.3. The program shall include the following:

e.3.1. General objective/s of the training program
e.3.2. Specific objectives of the training program
e.3.3. Course content
e.3.4. Training schedule
e.3.5. Training rules and regulations
e.3.6. Principles and methods of procedures to be taught
e.3.7. Right work attitude and ethical values
e.3.8. Objective evaluation of performance in each section
e.3.9. Contract of Affiliation

f. The training center shall release interns from duty one day per week to attend to their seminar classes.

g. The training center shall allow interns to attend official school activities/functions when requested by the Dean.

3. *Joint Responsibilities of the Institution and the Training Center*

The Institution and the Training Center shall:

a. Implement the training program
b. Hold monthly conference to evaluate the implementation of the program and institute changes.
c. Maintain cooperation and harmonious relationships among interns and staff of the training center at all times.

Performance Evaluation

1. To evaluate the performance of the interns the following shall be applied:

a. Examinations: theoretical, practical

b. Clinical Performance: competency skills, attitude and behavior, attendance and punctuality

Appendix B

LIST OF MINIMUM EQUIPMENT/INSTRUMENTS
CHEMICAL/ SUPPLIES REQUIREMENTS
FOR
BACHELOR OF SCIENCE IN RESPIRATORY THERAPY EDUCATION

A. Chemistry Laboratory

1. Analytical balance	:	1 for every 15-25 students
2. Rough balance	:	1 for every 5-10 students
3. Centrifuge machine	:	1 for every 15-25 students
4. Water bath with thermometer		
5. Burner/hotplate		
6. Timer		
7. Test tubes (different sizes)	:	10 pcs. per group of max. of 5 students
8. Test tube holder	:	1 pc per group of max. of 5 students
9. Test tube rack	:	1 pc per group of max. of 5 students
10. Flask (Erlenmeyer, Florence, Volumetric)		1 per group of students
11. Beaker	:	1 pc per group of max. of 5 students
12. Glass funnel	:	1 pc per group of max of 5 students
13. Graduated cylinder	:	1 pc per group of max. of 5 students
14. Aspirator bulb	:	1 pc per group of max of students
15. Volumetric pipettes (1ml, 5ml,and 10ml)		2 pcs per group of max. of 5 students
16. Reagents and supplies		

B. Biological Sciences

1. Microscopes (Binocular)	:	1 for every 1-2 students
2. Skeleton (Human and animal)		
3. Models (Different systems of the human body)		1 set each
4. Prepared slides of specimen	:	1 for every 5 students
5. Dissecting pan	:	1 for every 5 students
6. Dissecting set	:	1 for every 5 students
7. Kymograph set	:	1 per class
8. Glass slides	:	1 box per group
9. Cover slips	:	2 boxes per group
10. Reagents and supplies		
11. Charts, CD-ROM, transparencies		
12. Fresh and Preserved specimen		

C. Physics Laboratory

1. Vernier Caliper	:	5 pcs
2. Micrometer Caliper	:	5 pcs
3. Meter stick (with knife-edge support)	:	6 pcs
4. Metal Sphere	:	5 pcs
5. Cylinder vessel (metal or plastic)	:	5 pcs
2 to 3 cm diameter		
2 to 3 cm height		
6. Double Pan Balance	:	4 pcs
7. Graduated Cylinder		
10 ml	:	5 pcs
25 ml	:	5 pcs
50 ml	:	5 pcs
250 ml	:	5 pcs
500 ml	:	5 pcs
8. Metal Force table – round	:	5 pcs

9. Weights	:	5 sets
10. Sonometer	:	3 pcs
11. Tuning Forks	:	5 pcs
C – 256		
C – 384		
C – 512		
12. Bulb (with socket)	:	5 pcs
Metal Block	:	6 pcs
Lead	:	6 pcs
Copper	:	6 pcs
Aluminum	:	6 pcs
Brass	:	6 pcs
13. Thermometer	:	6 pcs
14. Bunsen Burner	:	6 pcs
15. Pipettes (10 ml)	:	12 pcs
16. Rubber Aspirator	:	12 pcs
17. Metal bob of different mass	:	12 pcs
18. Glass tubes	:	3 pcs
2.5 to 4 cm – diameter		
at least 40 cm in length		
19. Rubber mallet	:	6 pcs
20. Stirring Rod	:	6 pcs
21. Tripod	:	6 pcs
22. Steam boiler	:	6 pcs
23. Pycnometer – ordinary for solids	:	5 pcs
24. Baumehydrometer (universal)	:	3 pcs
25. J-tube apparatus	:	3 pcs
26. Mercury	:	100 ml
27. Calorimeter	:	6 pcs
28. Magnifier	:	3 pcs
29. Droppers	:	24 pcs
30. Voltmeter	:	3 pcs
31. Ammeter	:	3 pcs
32. Alligator Clips	:	12 pcs
33. Multi-tester	:	3 pcs
1.5 V Battery		
Resistors (Assorted)		

D. Microbiology

1. Microscope (Binocular)	-	1 for every 1-2 students
2. Incubator	-	1 for every three (3) classes
3. Autoclave	-	1 for every three (3) classes
4. Inoculating Hood	-	1 for every three (3) classes
5. Gas Pak unit	-	1 for every three (3) classes
6. Refrigerator	-	1
7. Colony Counter	-	1 for every three (3) classes
8. Drying oven	-	1 for every three (3) classes
9. pH meter	-	1 per class
10. Candle jar	-	1 per class
11. Petri dishes	-	5 per student
12. Inoculating Loop	-	1 per student
13. Inoculating needle	-	1 per student
14. Bent needle		
15. Burner/Alcohol lamp	-	1 per group
16. Set of Prepared slides	-	for demonstration
17. Erlenmeyer Flask	-	1 per 5 students
18. Graduated Cylinder		
19. Rough Balance	-	2 per class
20. Test tubes of different sizes	-	20 pcs. per group

21. Test tube rack	-	1 per group of 5-6 studies
22. Stove (single)	-	2 per class
23. Stop watch	-	1 per group 0f 5-6 studies
24. Slide	-	1 box per group
25. Cover slips	-	1 box per group
26. Stock cultures		
27. Culture media and other Reagents and supplies		

E. Respiratory Therapy Simulation Laboratory

1. Medical gas cylinders (sizes D, E, G, H/K)	:	1 cylinder size each per class
2. Reducing valves / pressure regulators	:	6 per class
3. Flow meters (Bourdon, Thorpe type)	:	4 per class
4. Humidifiers and its accessories	:	4 per class
5. Aerosol Generators (Compressor)	:	4 per class
6. Oxygen Therapy delivery devices	:	6 per class
7. Representative adult mechanical ventilator	:	1
8. Adult CPR Mannequin	:	1
9. Adult self-inflating manual resuscitator with resuscitator mask	:	1
10. Oxygen reservoir valve and bag (adult /pedia)	:	1 each size
11. Infant CPR Mannequin	:	1
12. Infant self-inflating manual resuscitator with resuscitator mask	:	1
13. Intubation Mannequin set	:	1
14. Laryngoscope with	:	2
Miller/McIntosh blade (neonatal, pediatric, adult)	:	1 for each size
15. Airway care devices	:	
Endotracheal tubes (neonate, pediatric, adult sizes)	:	4 for each size
Intubating Stylet	:	1 for each size
Oropharyngeal airways (neonate, pediatric, adult sizes)	:	4 for each size
Heat moisture exchanger (neonate, pediatric, adult sizes)	:	4 for each size
Bacteria filter	:	4 per class
16. Hospital Bed	:	1
17. Footstool	:	1
18. Suction machine	:	2 per class
19. Adjustable wrench	:	4 per class
20. Wall O2 / Air / Suction Outlet	:	1
21. Quick-connect type hoses		
Oxygen	:	1
Compressed Air	:	1
22. Personal Computer with pulmonary graphics Software	:	1
23. Wright's Respirometer	:	1
24. Oxygen Analyzer	:	1
25. Pulse oximeter	:	1
26. Peak flow meter (Adult / Pedia)	:	2 for each size
27. Respiratory Care consumables		
Different Nebulizer kits	:	10
Different Metered-dose inhalers (MDI)	:	10
Different Medications for aerosol therapy (nebules and inhalation solutions)	:	20

28. BP Apparatus	:	2 per class
29. Teaching Stethoscope	:	2 per class
30. Thermometer	:	1 per student

F. Universal Precautionary Requirements for all laboratories

laboratory gowns with long sleeves
gloves
masks

APPENDIX C

Respiratory Therapy Affiliation Fees

A. AFFILIATION FEES

Pulmonary Department Areas of Rotation

Areas of Rotation	Total Hours	Hours per Institution	**Days per Institution**
Pulmonary Diagnostics	500	167	**21**
General Respiratory Care	500	167	**21**
Adult Intensive Care Management	400	133	**17**
Neonatal /Pediatric Critical Care	100	33	**4**
Total	1500	500	**63**

Computation
For **Pulmonary Diagnostics** and **General Respiratory Care**
Assumption: Personnel to be utilized – RT I

Salary of RT I	10,000	/month
	÷ 4	weeks
	2,500	/week
	÷ 5	days
	500	/ day
	÷ 8	hours
Rate	62.50	/per hour

Areas of Rotation	Days per area	RT I Rate	Amount per Rotation	No. of Interns	Amount/Intern per area
Pulmonary Diagnostics	21	62.50	1,312.50	5	262.50
General Respiratory Care	21	62.50	1,312.50	5	262.50

Computation
For **Adult Intensive Care Unit Management** and **Neonatal & Pediatric Critical Care**
Assumption: Personnel to be utilized – RT II

Salary of RT II	12,000	/month
	÷ 4	weeks
	3,000	/week
	÷ 5	days
	600	/ day
	÷ 8	hours
Rate	75.00	/per hour

Areas of Rotation	Days per area	RT II Rate	Amount per Rotation	No. of Interns	Amount/Intern per area
Adult Intensive Care	17	75.00	1,275.00	5	255.00

Management					
Neonatal/Pediatric Critical Care	4	75.00	300.00	5	60.00

Summary

	Days per area	Amount / Intern	
Pulmonary Diagnostics	21	262.50	
General Respiratory Care	21	262.50	
Adult Intensive Care Management	17	255.00	
Neonatal/Pediatric Critical Care	4	60.00	
Total	63	**835.84**	**per intern**

B. USER FEES

1. Use of Library Facilities

Assumption: Use of library facilities at least 1 hour per day for 63 days by 20 interns.

Cost for use of library

Electrical Devices	Consumption (watts)
Lights	80
Computer	500
Air-conditioning Unit	2,760
Total	3,340

Total number of days	**63**	
Total Electrical Consumption	210,420	watts-hr
or	210.42	kw-hr

*4.75 rate / kw-hr was based on 2003 monthly bill of Meralco for government institutions

Rate	4.75	rate/kw-hr*
Electrical Consumption	210.42	kw-hr
Total Cost	999.50	pesos
Number of Interns	20	
Amount per Intern	**49.97**	**pesos**

2. Use of Hospital Quarter

Assumption: Use of hospital quarters at least 1 hour per day for 63 days by 20 interns.

Cost for use of Hospital Quarters

Electrical Devices	Consumption (watts)
Lights	80

Electric Fan	30	
Air-conditioning Unit	110	
Total	220	
Total number of days	**63**	
Total Electrical Consumption	13,860	watts-hr
or	13.86	kw-hr

Rate	4.75	pesos/kw-hr*
Electrical Consumption	13.86	kw-hr
Total Cost	65.84	pesos
Number of Interns	20	
Amount per Intern	**3.29**	**pesos**

Water consumption (assumed one time use of comfort room/student)

	6	Liters/Flush
Number of Interns	20	
	120	Liters
Number of Days	63	
Total water consumption	**7,560**	**Liters**
or	**7.56**	cu. meters
Rate	14.26	rate / cu. meter
Total Amount	107.81	
No. of Interns	20	
Amount per intern	**5.39**	**pesos**

Linen Usage
Regular change every 2nd day of use

Cost of Linens Used

No. of Linens	6	
Cost (Wash/Dry)	5.20	
No of days (63 days/ change every 2nd day)	32	
Total Cost	**998.4**	**pesos**
No. of Interns	20	
Amount per intern	**49.92**	**pesos**

3. Hospital Supplies

A. gloves
B. masks
C. others

Minimal cost: Not Considered

4. Identification Card

A. **PhP 50.00 per intern**

5. Use of Conference Room

Electrical Device Use

Electrical Device use	No. of Units	Consumption per unit (Kw)	Total (Kw)
Air-conditioning Unit	4	4.6	18.40
Amplifier	1	0.6	0.60
Computer	1	0.5	0.50
Fluorescent Light +Ballast	40	0.054	2.16
Total Power Usage @ Conference Room			21.66

Total Power Usage @ Conference Room (Kw)	21.66	
Rate (pesos/kw-hr)	4.75	
Amount per hour	102.89	
No. of Hours	20	(1.5 hours per week)
Total Amount	2,057.70	
No. of Interns	20	
Amount per Intern	**102.89**	**pesos**

C. ESTIMATED COST PER INTERN

Library Use	49.97
Hospital Quarters Use	
Electricity	3.29
Comfort Room	5.39
Linens	49.92
Identification Card	50.00
Conference Room Use	102.89
User Fees (Total)	261.46
Affiliation Fee	835.84
Total (Affiliation + User Fees)	**1,097.30**

D. INSTITUTION FEES

Affiliation Fee	835.84
User Fees (Total)	261.46
Total (Affiliation + User Fees)	1,097.30
Institution Fee (20%)	20% 219.46
Total Fees	**1,316.76**

For every 1 hospital rotation (63 days)

E. DEFINITIONS

1. Institution Fee - This is the fee given by the school to the hospital for the right and privilege of the school to use the hospital as their base hospital as required by CHED.

2. Affiliation Fee – This pertains to fees charged to individual students for their clinical internship program provided by the hospital staff.

3. User Fees – This pertains to the fees charged by hospital to cover for the supplies, utilities used during the tour of duty.

F. RECOMMENDATIONS

1. Affiliation and User Fees should be combined.
2. Institutional Fee should be set by the Hospital Management.
3. Costing and charging of fees should be evaluated.