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ABSTRACT

This guide presents the standard curriculum for technical institutes in Georgia. The curriculum addresses the minimum competencies for a respiratory therapy technology program. The guide contains four sections. The General Information section contains an introduction giving an overview and defining the purpose and objectives, a program description, including admissions requirements, typical job titles, an accreditation and certification statement; and a curriculum model, including standard curriculum sequence and lists of courses. The next three sections describe the courses under three categories: General Core Courses (English, algebraic concepts); Fundamental Technical Courses (anatomy and physiology, medical terminology, introduction to respiratory therapy, foundations of respiratory therapy, respiratory therapy equipment); and Specific Technical Courses (cardiopulmonary anatomy and physiology, pharmacology, patient assessment, patient monitoring, airway management, microbiology, pathophysiology, mechanical ventilation, mechanical ventilators, introduction to pulmonary function testing, neonatal/pediatric respiratory care, pulmonary rehabilitation, seminar, clinical orientation, respiratory care I-II, and respiratory critical care I-II). Each course entry consists of the following: course overview (description, competency areas, prerequisites, credit hours, contact hours); course outline with student objectives and class and lab hours; and resource list. An equipment list is appended. (YLB)

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RESPIRATORY THERAPY TECHNOLOGY PROGRAM GUIDE

RESPIRATORY THERAPY TECHNOLOGY PROGRAM GUIDE

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RESPIRATORY THERAPY TECHNOLOGY PROGRAM GUIDE

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HOW TO USE THIS MANUAL

Summary

This manual is divided into:

Tabs - major divisions, physically separated by numbered tab dividers

Sections - divisions within a tab

Subjects - divisions within a section

Numbering System

Each document (Subject) has a unique 6-digit number. This number is divided into 3 sets of 2 digits which are separated by dashes.

Example: 04 - 02 - 03
TAB SECTION SUBJECT

Locating a Document

Document numbers appear on the upper right hand corner of each page (see top of this page). To locate a subject:

1. Refer to the Table of Contents.
2. Note the document number for the subject.

   Example: 04-02-03

3. Turn to the tab divider marked 04 and within this tab find Section 02 and Subject 03.

Table of Contents

The table of contents (00-00-01) is intended to give a cover-to-cover overview of the manual contents and organization. It lists contents of a Tab to the Section and Subject level.

Amendments

Registered manual holders are instructed to keep their manuals up-to-date.

Manuals Document Transmittal	All new or revised documents are sent to the registered holder of the manual and are recorded on a Manuals Document Transmittal Form. Transmittals are numbered consecutively, and instructions for use are printed on the form.
Amendment Record	The registered holder of the manual records the receipt of all manual document transmittals on the Amendment Record. This record and instructions are found on the reverse side of the manual title page.

GENERAL INFORMATION

Introduction

Overview

Respiratory Therapy Technology is a program of study which is consistent with the philosophy and purpose of the institution. The program provides academic foundations in communications, mathematics, and human relations, as well as technical fundamentals. Program graduates are well trained in the underlying fundamentals of respiratory therapy technology and are well prepared for employment and subsequent upward mobility.

The Respiratory Therapy Technology program is a specialized training program that provides the student with the knowledge and skills to become a competent respiratory therapy technician in the modern respiratory therapy technology profession. Skills application plays a vital role in the comprehensive Respiratory Therapy Technology program. Important attributes of successful program graduates are critical thinking, problem solving, and the ability to apply technology to the work requirement. This field has experienced rapid expansion and the trend is expected to continue for the foreseeable future.

The program structure acknowledges individual differences and provides opportunities for students to seek fulfillment of their respective educational goals. The program does not discriminate on the basis of race, color, national origin, religion, sex, handicapping condition, academic or economic disadvantage.

To assist each student to attain his or her respective potential within the program, both the instructor and the student incur an obligation in the learning process. The instructor is a manager of instructional resources and organizes instruction in a manner which promotes learning. The student assumes responsibility for learning by actively participating in the learning process.

This is a dynamic field which requires extraordinary attention to current curriculum and up-to-date instructional equipment, materials and processes. The Respiratory Therapy Technology program must promote the concept of change as the profession evolves. The need for nurturing the spirit of involvement and lifelong learning is paramount in the respiratory therapy technology profession.

GENERAL INFORMATION

Introduction

Standard Curriculum

The Respiratory Therapy Technology program guide presents the standard respiratory therapy technology curriculum for technical institutes in Georgia. This curriculum addresses the minimum competencies for the Respiratory Therapy Technology program. The competency areas included in a local Respiratory Therapy Technology program may exceed what is contained in this program guide, but it must encompass the minimum competencies contained herein.

As changes occur in Respiratory Therapy Technology, this program guide will be revised to reflect those changes. Proposed changes are first evaluated and approved by the local program advisory committee and then forwarded to the State Technical Committee for approval and inclusion in the state standard program guide.

This program guide is designed to relate primarily to the development of those skills needed by individuals in the field such as airway management, mechanical ventilation, and pulmonary rehabilitation.

GENERAL INFORMATION

Introduction

Developmental Process

The development of the Respiratory Therapy Technology program guide was based on the premise that the people in the industry can best determine program needs. With this in mind, representatives from businesses which would employ program graduates were asked to serve on a State Technical Committee to help identify the technical content and to provide overall guidance to ensure that the resulting program would produce graduates qualified for entry-level technical positions in the industry.

Representatives from the various technical areas recommended by the State Technical Committee verified the task list compiled from extensive research. These representatives included workers who had actually performed the duties and tasks being verified.

Technical institutes which would implement the curriculum were also included in the developmental effort. Representatives from the technical institutes provided the expertise in teaching methodology unique to each discipline and developed the courses contained in this program guide.

The University of Georgia coordinated and directed the development of the curriculum and produced the final program guide. The role of each group in the developmental process is shown in the following diagram.

GENERAL INFORMATION

Introduction

Purpose and Objectives

Purpose

The purpose of the Respiratory Therapy Technology program is to provide educational opportunities to individuals that will enable them to obtain the knowledge, skills, and attitudes necessary to succeed in the respiratory therapy technology profession.

The Respiratory Therapy Technology program provides educational opportunities regardless of race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, or economic disadvantage.

The Respiratory Therapy Technology program is intended to produce graduates who are prepared for employment as respiratory therapy technicians. Program graduates are to be competent in the general areas of communications, math, and professional relations

Graduates are to be competent in reviewing clinical data, history, and respiratory therapy orders; collecting clinical data by interview and examination of the patient; recommending and/or performing and reviewing additional bedside procedures and laboratory tests; evaluating data to determine the appropriateness of the prescribed respiratory care; assembling and maintaining equipment used in respiratory care; assuring cleanliness and sterility by the selection and/or performance of appropriate disinfecting techniques and monitoring their effectiveness; and initiating, conducting, and modifying prescribed therapeutic procedures.

Objectives

1. Provide current curriculum instructional materials, and equipment (in accordance with available funding) which teach knowledge, skills, and attitudes appropriate to industry needs.

2. Provide educational facilities which foster learning and provide safe, healthy environments available and accessible to all students who can benefit from the program.

3. Provide academic instruction which supports effective learning within the program and which enhances professional performance on the job.

4. Provide employability skills which foster work attitudes and work habits that will enable graduates of the program to perform as good employees.

5. Nurture the desire for learning so that graduates will pursue their own continuing education as a lifelong endeavor.

6. Provide an educational atmosphere which promotes a positive self image and a sense of personal well being.

7. Provide education that fosters development of good safety habits.

8. Provide admission, educational, and placement services without regard to race, color, national origin, religion, sex, age, or handicapping condition.

9. Provide information to the public regarding the program that will facilitate recruitment and enrollment of students.

10. Promote good public relations via contacts and regular communications with business, industry, and the public sector.

11. Promote faculty and student rapport and communications to enhance student success in the program.

GENERAL INFORMATION

Program Description

Program Defined

The Respiratory Therapy Technology accredited program prepares students for employment in a variety of positions in today's respiratory therapy profession. The Respiratory Therapy Technology program provides learning opportunities which introduce, develop, and reinforce academic and occupational knowledge, skills, and attitudes required for job acquisition, retention, and advancement. Graduates of the program receive a Respiratory Therapy Technology diploma and are eligible to sit for a national, certified respiratory therapy technician examination.

GENERAL INFORMATION

Program Description

Admissions

Admissions Requirements

Admission of new students to the Respiratory Therapy Technology program is contingent upon their meeting all of the following requirements:

a) attainment of 17 or more years of age;
b) achievement of the 10th grade level in math, reading, and English as shown on a statistically validated test or minimum SAT scores of 400 verbal and 400 math;
c) documentation of high school graduation or satisfaction of GED requirements;
d) documentation of a physician's examination;
e) submission of an immunization record; and
f) completion of application and related procedures.

Admission of transfer students is contingent upon their meeting the following:

a) regular admission and good standing at a regionally accredited diploma or degree granting institution; and
b) proper completion of application and related procedures.

Provisional Admission

A new student who does not meet the regular admission requirements of the program may be admitted on a provisional basis. The requirements for provisional admission are:

a) attainment of 17 or more years of age;
b) achievement of the 9th grade level in math, reading, and English as shown on a statistically validated test or recommendation by program faculty and designated admissions personnel on the basis of interview and assessment of student potential; and
c) completion of application and related procedures.

GENERAL INFORMATION

Program Descriptton

Typical Job Titles

The Respiratory Therapy Technology program is assigned a (PGM) CIP code of (PGM) 17.0210 and is consistent with all other programs throughout the state which have the same (PGM) CIP code. The related D.O.T. job title follows:

Respiratory Therapy Technician	079.361-010

GENERAL INFORMATION

Program Description

Accreditation and Certification

This program must conform to the institutional accreditation requirements of the Southern Association of Colleges and schools by meeting Commission on Colleges (COC) or Commission on Occupational Education Institutions (COEI) accreditation requirements and must not conflict with the accreditation criteria established by COC and COEI.

This program must meet the requirements stated in the *Essentials and Guidelines of an Accredited Educational Program for the Respiratory Therapy Technician and Respiratory* Therapists.

Respiratory Therapy programs are accredited by the Committee on Allied Health Education Accreditation of the American Medical Association and the Joint Review Committee for Respiratory Therapy Education (JRCRTE).

GENERAL INFORMATION

Curriculum Model

Standard Curriculum

The standard curriculum for the Respiratory Therapy Technology program is set up on the quarter system. Technical institutes may implement the Respiratory Therapy Technology program using one of the sequences listed below or using a locally developed sequence designed to reflect course prerequisites and/or corequisites.

Course		Class Hours	Lab Hours	Weekly Contact Hours	Credits
SUGGESTED SEQUENCE I					
FIRST QUARTER					
ENG 101	English	5	0	5	5
MAT 103	Algebraic Concepts	5	0	5	5
AHS 101	Anatomy and Physiology	5	0	5	5
AHS 109	Medical Terminology for Allied Health Science	3	0	3	3
RES 101	Introduction to Respiratory Therapy	5	0	5	5
		23	0	23	23
SECOND QUARTER					
RES 102	Foundations of Respiratory Therapy	5	0	5	5
RES 103	Respiratory Therapy Equipment	3	5	8	5
RES 104	Cardiopulmonary Anatomy and Physiology	5	0	5	5
RES 106	Pharmacology	5	0	5	5
XXX XXX	Technical or Technically Related Elective	-	-	-	3
		18	5	23	23

Course		Class Hours	Lab Hours	Weekly Contact Hours	Credits
THIRD QUARTER					
RES 107	Patient Assessment	2	1	3	2
RES 108	Patient Monitoring	2	1	3	2
RES 109	Airway Management	2	1	3	2
RES 110	Microbiology	3	0	3	3
RES 111	Pathophysiology	6	0	6	6
RES 121	Respiratory Clinical Orientation	0	8	8	2
RES 122	Respiratory Care I	0	8	8	2
		15	19	34	19
FOURTH QUARTER					
RES 113	Mechanical Ventilation	4	0	4	4
RES 114	Mechanical Ventilators	0	6	6	3
RES 115	Introduction to Pulmonary Function Testing	1	1	2	1
RES 123	Respiratory Care II	0	8	8	2
RES 124	Respiratory Critical Care I	0	16	16	5
		5	31	36	15
FIFTH QUARTER					
RES 116	Neonatal/Pediatric Respiratory Care	4	0	4	4
RES 117	Pulmonary Rehabilitation	1	0	1	1
RES 120	Respiratory Therapy Seminar	1	0	1	1
RES 125	Respiratory Critical Care II	0	32	32	10
		6	32	38	16

Course			Class Hours	Lab Hours	Weekly Contact Hours	Credits
SUGGESTED SEQUENCE II						
FIRST QUARTER						
AHS	101	General Anatomy and Physiology	5	0	5	5
AHS	109	Medical Terminology for Allied Health Science	3	0	3	3
ENG	101	English	5	0	5	5
MAT	103	Algebraic Concepts	5	0	5	5
RES	101	Introduction to Respiratory Therapy	5	0	5	5
RES	102	Foundations of Respiratory Therapy	5	0	5	5
			28	0	28	28
SECOND QUARTER						
RES	103	Respiratory Therapy Equipment	3	5	8	5
RES	104	Cardiopulmonary Anatomy and Physiology	5	0	5	5
RES	106	Pharmacology	5	0	5	5
RES	107	Patient Assessment	2	1	3	2
RES	121	Respiratory Clinical Orientation	0	8	8	2
			15	14	29	19

Course			Class Hours	Lab Hours	Weekly Contact Hours	Credits
THIRD QUARTER						
RES	108	Patient Monitoring	2	1	3	2
RES	109	Airway Management	2	1	3	2
RES	110	Microbiology	3	0	3	3
RES	111	Pathology	6	0	6	6
RES	122	Respiratory Care I	0	8	8	2
RES	123	Respiratory Care II	0	8	8	2
			13	18	31	17
FOURTH QUARTER						
RES	113	Mechanical Ventilation	4	0	4	4
RES	114	Mechanical Ventilators	0	6	6	3
RES	115	Introduction to Pulmonary Function Testing	1	1	2	1
RES	116	Neonatal/Pediatric Respiratory Care	4	0	4	4
RES	124	Respiratory Critical Care I	0	16	16	5
			9	23	32	17
FIFTH QUARTER						
RES	117	Pulmonary Rehabilitation	1	0	1	1
RES	120	Respiratory Therapy Seminar	1	0	1	1
RES	125	Respiratory Critical Care II	0	32	32	10
XXX	XXX	Technical or Technically Related Elective	-	-	-	3
			2	32	34	15

GENERAL INFORMATION

Curriculum Model

General Core Courses

The general core courses provide students with a foundation in the basic skills which enable them to express themselves more clearly, both orally and in writing, and to perform the mathematical functions required in this occupation. The general core courses for the Respiratory Therapy Technology program are listed below.

ENG 101	English	5 Credits
MAT 103	Algebraic Concepts	5 Credits

GENERAL INFORMATION

Curriculum Model

Fundamental Technical Courses

The fundamental technical courses provide students with a foundation in the area of respiratory therapy technology which is needed to progress to the more highly specialized courses in respiratory therapy technology. The fundamental technical courses are listed below.

AHS 101	Anatomy and Physiology	5 Credits
AHS 109	Medical Terminology for Allied Health Science	3 Credits
RES 101	Introduction to Respiratory Therapy	5 Credits
RES 102	Foundations of Respiratory Therapy	5 Credits
RES 103	Respiratory Therapy Equipment	5 Credits

GENERAL INFORMATION

Curriculum Model

Specific Technical Courses

The specific technical courses build upon the fundamental occupational courses to provide students with the basic knowledge and skill required to work as a respiratory therapy technician. The specific technical courses offered in the Respiratory Therapy Technology program are listed below.

RES 104	Cardiopulmonary Anatomy and Physiology	5 Credits
RES 106	Pharmacology	5 Credits
RES 107	Patient Assessment	2 Credits
RES 108	Patient Monitoring	2 Credits
RES 109	Airway Management	2 Credits
RES 110	Microbiology	3 Credits
RES 111	Pathophysiology	6 Credits
RES 113	Mechanical Ventilation	4 Credits
RES 114	Mechanical Ventilators	3 Credits
RES 115	Introduction to Pulmonary Function Testing	1 Credit
RES 116	Neonatal/Pediatric Respiratory Care	4 Credits
RES 117	Pulmonary Rehabilitation	1 Credit
RES 120	Respiratory Therapy Seminar	1 Credit
RES 121	Respiratory Clinical Orientation	2 Credits
RES 122	Respiratory Care I	2 Credits

RES 123	Respiratory Care II	2 Credits
RES 124	Respiratory Critical Care I	5 Credits
RES 125	Respiratory Critical Care II	10 Credits
	Technical or Technically Related Electives	3 Credits

GENERAL INFORMATION

Curriculum Model

Electives

Elective courses are provided to allow for the different levels of prior knowledge and skills brought to the classroom by students with diverse backgrounds, educational attainment, and specialized interests.

Decisions regarding the selection and appropriateness of any elective are made by the student after consultation with the instructor. Courses from other departments may be taken as electives when considered appropriate for a student's academic circumstances and career goals.

GENERAL CORE

ENG 101 - English

Course Overview

Course Description

Emphasizes the development and improvement of written and oral communication abilities. Topics include: analysis of writing techniques used in selected readings, writing practice, editing and proofreading, research skills, and oral presentation skills. Homework assignments reinforce classroom learning.

Competency Areas

Analysis of Writing Techniques
Used in Selected Readings
Writing Practice
Editing and Proofreading
Research Skills
Oral Presentation Skills

Prerequisite

Program admission level English and reading competency

Credit Hours

5

Contact Hours Per Week

Class - 5

Lab - 0

GENERAL CORE

ENG 101 - English

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
ANALYSIS OF WRITING TECHNIQUES USED IN SELECTED READINGS		**10**	**0**
Review and analysis of various writing techniques	Read and analyze writing to identify subject and focus. Read and analyze writing to identify supporting information. Read and analyze writing to identify patterns of development, such as time, space, climax, example, process, instructions, definition, comparison/ contrast, cause and effect, classification, and problem-solving.		
WRITING PRACTICE		**20**	**0**
Review of grammar fundamentals	Produce logically organized, grammatically acceptable writing.		
Review of composition fundamentals	Compose a variety of paragraphs, reports, memorandums, and business letters. Demonstrate listening skills by following directions for writing assignments.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
EDITING AND PROOFREADING		**10**	**0**
Review of editing fundamentals	Revise to improve ideas, style, organization, and format, preferably with word processing. Edit to improve grammar, mechanics, and spelling.		
RESEARCH SKILLS		**5**	**0**
Resource materials location and utilization	Utilize library resources to enhance writing.		
ORAL PRESENTATION SKILLS		**5**	**0**
Types of oral presentation participation	Participate in class discussion, small group discussion, and/or individual presentations.		
Role of the listener	Participate as an active listener.		

GENERAL CORE

ENG 101 - English

Resources

Lewis, S. D., Smith, H., Baker, F., Ellegood, G., Kopay, C., & Tanzer, W. (1988). *Writing skills for technical students* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

VanAlstyne, J. S. (1986). *Professional and technical writing strategies*. Englewood Cliffs, NJ: Prentice Hall.

GENERAL CORE

MAT 103 - Algebraic Concepts

Course Overview

Course Description

Introduces concepts and operations which can be applied to the study of algebra. Topics include: a review of arithmetic, signed numbers, order of operations, unknowns and variables, algebraic expressions, equations and formulas, and graphs. Class includes lecture, applications, and homework to reinforce learning.

Competency Areas

Basic Mathematical Concept
Basic Algebraic Concepts

Prerequisite

Program admission level math competency

Credit Hours

5

Contact Hours Per Week

Class - 5

Lab - 0

GENERAL CORE

MAT 103 - Algebraic Concepts

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
BASIC MATHEMATICAL CONCEPTS		**15**	**0**
Review of arithmetic	Perform mathematical calculations using whole numbers, fractions, decimals, and percents.		
	Solve problems using exponents and radicals.		
	Use a calculator to perform basic mathematical operations to solve problems.		
BASIC ALGEBRAIC CONCEPTS		**35**	**0**
Signed numbers	Identify signed numbers, absolute values, and scientific notation.		
	Perform basic operations using signed numbers.		
	Use signed numbers in elementary applications.		
Order of operations	List the hierarchy of operations.		
	Apply hierarchy of operations to solve mathematical problems requiring multiple operations.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Unknowns and variables	Define unknowns and variables.		
	Recognize the difference between factors and terms.		
Algebraic expressions	Recognize literal expressions and terms.		
	Perform addition, subtraction, multiplication, and division of algebraic expressions.		
	Factor algebraic expressions.		
	Simplify algebraic expressions.		
Equations, formulas, and graphs	Solve linear equations of one unknown using numerical calculations, approximation, and graphs		
	Solve a formula for a designated unknown.		
	Use formulas to solve applied problems under given conditions.		
	Solve applied problems using equations.		
	Solve linear equations of two unknowns using simultaneous equations, substitution, and graphing.		
	Solve linear equations of two and three unknowns using determinants.		

GENERAL CORE

MAT 103 - Algebraic Concepts

Resources

Harter, J. H., & Beitzel, W. D. (1988). *Mathematics applied to electronic* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.

Heywood, A. (1982). *Arithmetic: A programmed worktext.* Monterey, CA: Brooks/Cole.

Johnston, C. L., Willis, A. T., & Hughes, (1984). *Essential arithmetic* (4th ed.). Belmont, CA: Wadsworth.

Keedy, M. L., & Bittinger, M. L. (1983). *Introductory algebra* (4th ed.). Perdue, IN: Addison-Wesley.

Keedy, M. L., & Bittinger, M. L. (1985). *Essential mathematics* (4th ed.). Perdue, IN: Addison-Wesley.

Lewis, H. (1986). *Technical mathematics.* Albany, NY: Delmar.

Palmer, C. L., & Rachek, L. A. (1986). *Practical mathematics* (7th ed.). Minneapolis: McGraw-Hill.

Proga, R. (1987). *Basic mathematics* (2nd ed.). Boston: Prindle, Weber & Schmidt.

Washington, A. J., & Triola, M. F. (1984). *Technical mathematics* (3rd ed.). Poughkeepsie, NY: Benjamin/Cummings.

FUNDAMENTAL TECHNICAL

AHS 101 - Anatomy And Physiology

Course Overview

Course Description

Focuses on basic normal structure and function of the human body. Topics include: an overview of each body system, how systems coordinate activities to maintain a balanced state, recognizing deviations from the normal, and medical terminology including basic word structure and terms related to body structure and function are taught as an integral part of the course.

Competency Areas

Medical terms describing the human body
Structure and function of the human body

Prerequisite

Provisional admission

5

Contact Hours Per Week

Class - 5

Lab - 0

FUNDAMENTAL TECHNICAL

AHS 101 - Anatomy And Physiology

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
MEDICAL TERMS DESCRIBING THE HUMAN BODY		**10**	**0**
Patient information using a knowledge of anatomical terminology	Describe anatomical position.		
	Define and use the principle directional terms in human anatomy.		
	Identify on diagram, sagittal, tranverse, and frontal sections of the body.		
	Define and locate the principle regions and cavities of the human body.		
Word elements and medical terminology	Give the definition of a selected group of prefixes, roots combining forms, and suffixes.		
	Write the meaning of a selected list of medical terms.		
STRUCTURE AND FUNCTION OF THE HUMAN BODY		**40**	**0**
General plan and structure of the human body	Define anatomy and physiology.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Identify the structure of a cell, tissue, organ, and system and explain the relationship a month these structures as they constitute an organism.		
Chemical elements and the human body	Define the term homeostatis and metabolism.		
	Differentiate between inorganic and organic compounds and give examples of each.		
	Explain and distinguish among passive and active processes.		
	Contrast acids and use PH scale in describing acidity and alkalinity of a solution.		
	Identify the biologically significant elements from a given list by their chemical symbols and summarize the main functions of each in the body.		
Basic structure and function of systems for body integration and coordination: endocrine, nervous, and sensory systems	Locate the principle endocrine glands, and identify the principle hormone and functions.		
	Define the terms endocrine gland and hormone and describe how the endocrine system works to maintain homeostasis.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Describe the negative feedback mechanism.		
	Describe the mechanism by which the hypothalamus links the nervous and endocrine systems.		
	Identify the general functions of the nervous system.		
	Explain the anatomical and functinal classification of the nervous system.		
	Identify types of neurons and describe their functions.		
	Identify parts of a neuron.		
	Describe the physiology of a nerve impulse.		
	Describe structures that protect the brain and spinal cord.		
	Identify cranial nerves and give functions of each.		
	Compare and contrast the sympathetic with the parasympathetic nervous system.		
	Compare the effect of sympathetic with parasympathetic stimulation on a specific organ.		
	Identify spinal nerves and define plexus.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Name the principle areas and functions associated with the lobes of the cerebrum.		
	Identify parts of the brain.		
	Describe the structure and functions of the three major parts of the ear.		
	Describe the structure and functions of the eye.		
	Describe the physiology of vision.		
	Trace sound waves through the ear.		
	Differentiate special and general senses.		
	Describe tactile sensation and proprioception.		
Systems for maintenance of the body: cardiovascular, respiratory, gastrointestinal, and urinary systems	Describe the functions of the cardiovascular system.		
	Describe the major components of the cardiovascular system.		
	Describe the location of the heart in relation to other organs of the thoracic cavity and the associated serous membranes.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Label a heart identifying chambers, valves, and associated vessels of the heart.		
	Trace flow of blood through the heart, and distinguish between the pulmonary and systemic circulation.		
	Describe location of the parts of the conduction system of the heart, and trace the pathway of impulses initiation and conduction.		
	Describe the components of blood in reference to two main parts and the functions of each.		
	Explain the function of lymphatic sustems as a subsystem to the circulatory system.		
	Describe parts of the upper and lower respiratory tract.		
	Trace the pathway of air into and out of the respiratory tract.		
	Explain the physiology of breathing.		
	Differentiate external and internal respirations.		
	Differentiate chemical and mechanical digestion.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Identify on diagram parts of the digestive system.		
	List primary and accessory digestive organs.		
	Briefly discuss physiology of all digestive organs.		
	Relate the rols of the autonomic nervous system to functioning of the digestive system.		
	Associate location of the digestive organs with the front abdominal quadrants.		
	Differentiate visceral and parietal peritoneum.		
	Locate the parts of the urinary system on a diagram.		
	Explain general functions of the urinary system.		
	Explain the relationships of the urinary system to the endocrine and circulatory system.		
	Describe the structure and function of the nephron.		
	Compare the urinary system of the female with that of the male.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Identify the constituents of urine.		
	Differentiate among secretion, filtration, and reabsorption.		
Body support and movement: muscoskeletal and integumentary systems	Identify functions of the integumentary system.		
	Describe parts of the integumentary system.		
	Explain two divisions of the skeletal system.		
	Identify bones of the two divisions.		
	Describe functions of the skeletal system.		
	Explain relationships of the endocrine system to the skeletal system.		
	Describe development of the skeletal system.		
	List functions of the skeletal muscles.		
	Identify three types of muscles.		
	Describe criteria used for naming muscles.		
	Name the muscles used for intramuscular injection sites.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
	Differentiate tenuous ligaments, fascia.		
	Explain functions of skeletal muscular system.		
	Explain physiology of a muscle contraction.		
	Describe kinds of movements possible as a result of skeletal muscle contraction and joint functining.		
Systems for continuance of the species	Describe the anatomy and physiology of the female duct system.		
	Describe physiology of the ovary.		
	Identify three parts of the uterus.		
	Label diagram of the female reproductive system.		
	Explain the hormonal control of the menstrual cycle.		
	Describe the anatomy and physiology of the male duct system.		
	Describe physiology of the testes.		
	Relate urinary system to the reproductive system of the males.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
	Explain relationship of endocrine functioning to the male reproductive system.		

FUNDAMENTAL TECHNICAL

AHS 101 - Anatomy And Physiology

Resources

Anthony, C. P., & Thibodeau, G. A. (1983). *Structure and function of the body, time mirror.* St. Louis: Mosby.

Anthony, C. P., & Thibodeau, G. A. (1983). *Textbook of anatomy and physiology.* St. Louis: Mosby.

Marieb, E. (1988). *Essentials of human anatomy and physiology.* Menlo Park, CA: Addison Wesley.

Marieb, E. (1988). *Essentials of human anatomy and physiology workbook.* Menlo Park, CA: Addison Wesley.

Memmler, R. L., & Wood, D. L. (1986). *Structure and function of the human body.* Philadelphia: J. B. Lippncott.

Rice, J. (1986). *Medical terminology with human anatomy.* New York: Appleton & Lange.

Soloman, E. P., & Phillips, G. A. (1987). *Understanding human anatomy and physiology.* Philadelphia: J. B. Lippincott.

Thomas, C. L. (1985). *Taber's cyclopedia medical dictionary.* Philadelphia: F. A. Davis.

FUNDAMENTAL TECHNICAL

AHS 109 - Medical Terminology For Allied Health Science

Course Overview

Course Description

Introduces the elements of medical terminology. Emphasis is placed on building familiarity with medical words through knowledge of roots, prefixes,and suffixes. Topics include: origins, word building, abbreviations and symbols, terminology related to the human anatomy, reading medical orders and reports, and terminology specific to the student's field of study.

Competency Areas

Word Origins (Roots, Prefixes, and Suffixes)
Word Building
Abbreviations and Symbols
Terminology Related to the Human Anatomy
Reading Medical Orders and Reports
Terminology Specific to the Student's Field of Study

Prerequisite

Provisional admission

Credit Hours

3

Contact Hours Per Week

Lab - 0

Class - 3

FUNDAMENTAL TECHNICAL

AHS 109 - Medical Terminology For Allied Health Science

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
WORD ORIGINS (ROOTS, PREFIXES, AND SUFFIXES)		**5**	**0**
History of medical terminology	Explain derivation of medical terms.		
Fundamentals of terminology	Define word roots, prefixes, and suffixes.		
	Explain the conventions for combining morphemes and the formation of plurals.		
	Pronounce basic medical terms.		
Suffixes	Identify adjective endings.		
	Identify noun endings.		
Prefixes	Identify prefixes of position, color, number and measurement, negation, and direction.		
WORD BUILDING		**3**	**0**
Using morphemes	Form medical terms utilizing roots.		
	Form medical terms utilizing suffixes.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Form medical terms utilizing prefixes.		
Combining morphemes	Form medical terms combining roots, prefixes, and suffixes.		
ABBREVIATIONS AND SYMBOLS		**2**	**0**
Abbreviations	Intrepret basic medical abbreviations.		
Symbols	Interpret basic medical symbols.		
TERMINOLOGY RELATED TO THE HUMAN ANATOMY		**7**	**0**
Integumentary system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the integumentary system.		
Musculoskeletal system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the musculoskeletal system.		
Respiratory system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the respiratory system.		
Cardiovascular system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the cardiovascular system.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Gastrointestinal system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the gastrointestinal system.		
Urinary system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the urinary system.		
Male reproductive system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the male reproductive system.		
Female reproductive system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the female reproductive system.		
Nervous system	Utilize diagnostic, surgical, procedural terms, and abbreviations related to the nervous system.		
Endocrine system	Utilize diatnostic, surgical, procedural terms, and abbreviations related to the endocrine system.		
READING MEDICAL ORDERS AND REPORTS		**3**	**0**
Medical orders	Interpret medical orders.		
Medical reports	Interpret medical reports.		
	Prepare medical reports.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
TERMINOLOGY SPECIFIC TO THE STUDENT'S FIELD OF STUDY		**10**	**0**
Occupationally specific medical terminology	Utilize diagnostic, surgical, procedural terms, and abbreviations related to a specific medical field.		

FUNDAMENTAL TECHNICAL

AHS 109 - Medical Terminology For Allied Health Science

Resources

Glanze, W. D. Anderson, K. N., & Anderson, L. E. (1986). *Mosby's medical and nursing dictionary* (2nd ed.). St. Louis: C. V. Mosby.

Gylys, B. A., & Wedding, M. E. (1988). *Instructor's guide for medical terminology: A systems approach.* Philadelphia: F. A. Davis.

Gylys, B. A., & Wedding, M. E. (1988). *Medical terminology: A systems approach* (2nd ed.). Philadelphia: F. A. Davis.

LaFleur, M. W., & Starr, W. K. (1988). *Exploring medical language.* Philadelphia: W. B. Saunders.

Rice, E. P. (1985). *Phonetic dictionary of medical terminology: A spelling guide.* Owings Mills, MD: National Health.

Rice, J. (1986). *Medical terminology with human anatomy.* New York: Appleton & Lange.

Rice, J. (1986). *Answer key and test bank: Medical terminology with human anatomy.* East Norwolk, CT: Appleton-Century-Crofts.

Smith, G. L., & Davis, P. E. (1988). *Medical terminology: A programmed test* (5th ed.). New York: John Wiley & Sons.

Squires, B. P. (1986). *Basic terms of anatomy and physiology.* (2nd ed.). Philadelphia: W. B. Saunders.

Thomas, C. L. (1985). *Taber's cyclopedia medical dicticnary.* Philadelphia: F. A. Davis.

FUNDAMENTAL TECHNICAL

RES 101 - Introduction To Respiratory Therapy

Course Overview

Course Description

Provides a study of the relations in the contemporary medical field that prepares students for working in hospitals or home care settings. Topics include: overview of respiratory therapy; job acquisition, retention, and advancement; legal and ethical considerations; hospital and departmental organization; death and dying; professionalism; and safety.

Competency Areas

Overview of Respiratory Therapy
Job Acquisition, Retention, and Advancement
Legal and Ethical Considerations
Hospital and Departmental Organization
Death and Dying
Professionalism
Safety

Prerequisite

Provisional admission

Credit Hours

5

Contact Hours Per Week

Lab - 0

Class - 5

FUNDAMENTAL TECHNICAL

RES 101 - Introduction To Respiratory Therapy

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
OVERVIEW OF RESPIRATORY THERAPY		**15**	**0**
History of the profession	Discuss the development of the respiratory therapy profession.		
Professional and accrediting organizations	Discuss the role of profession and accrediting organizations.		
JOB ACQUISITION, RETENTION, AND ADVANCEMENT		**10**	**0**
Employability skills	Identify skills needed to acquire and retain a job.		
	Discuss the skills needed to retain and advance in the respiratory profession.		
LEGAL AND ETHICAL CONSIDERATIONS		**5**	**0**
Vocabulary	Identify the legal terms used in lawsuits.		
	Discuss the types of lawsuits seen in the medical field.		
Avoidance of legal problems	Identify ways to avoid a lawsuit.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Discuss the role of the technician in lawsuits.		
Overview of ethics	Identify the fundamental ethics all technicians must observe.		
HOSPITAL AND DEPARTMENTAL ORGANIZATION		**5**	**0**
Organizational structure of the hospital and respiratory care department	Identify a generic hospital and departmental structure. Discuss the function of the departmental structure.		
DEATH AND DYING		**2**	**0**
Overview of the dying process	Identify the psychological stages involved in the dying process.		
Stress management	Describe stress management for the health care worker.		
PROFESSIONALISM		**3**	**0**
Health care as a profession	Describe various health care professions. Discuss the need for professional organizations. Identify the characteristics of a professional.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
SAFETY		**10**	**0**
General safety concerns	Identify basic electrical safety.		
	Identify proper lifting techniques.		
	Adopt laboratory safety practices.		
Hospital safety concerns	Identify blood and body fluid precautions.		
	Discuss patient safety issues.		
	Identify potential fire hazards in the hospital and methods of hazard avoidance.		
	Discuss the need for cutoff valves.		

FUNDAMENTAL TECHNICAL

RES 101 - Introduction To Respiratory Therapy

Resources

Barnes, T. A. (Ed.). (1988). *Respiratory care practice*. Chicago: Year Book Medical.

Burton, G. G., & Hodgkin, J. E. (Eds.). (1984). *Respiratory care: A guide to clinical practice* (2nd ed.). Philadelphia: Lippincott.

Deshpande, V. M. (1988). *Comprehensive respiratory therapy*. East Norwalk, CT: Appleton & Lange.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care*. St. Louis: C. V. Mosby.

Kacmerek, R. (1979). *The essentials of respiratory therapy*. Chicago: Year Book Medical.

Shapiro, B. A. (1985). *Clinical applications of respiratory care* (3rd ed.). Chicago: Year Book Medical.

Spearman, C. B., Sheldon, R. L., & Egan, D. F. (1988). *Egan's fundamentals of respiratory therapy* (5th ed.). St. Louis: C. V. Mosby.

FUNDAMENTAL TECHNICAL

RES 102 - Foundations Of Respiratory Therapy

Course Overview

Course Description

Discusses the basic respiratory therapy modalities and their relationship to medical application, indications, contraindications, hazards, and evaluation of these modalities. Topics include: chemistry; physics; process, storage, and regulation of medical gases; and indications, hazards, and contraindications of oxygen therapy, aerosol and humidity therapy, chest physiotherapy, and hyperinflation therapy.

Competency Areas

Chemistry
Physics
Process, Storage, and Regulation of Medical Gases
Indications, Hazards, and Contraindications of
Oxygen Therapy, Aerosol and Humidity Therapy,
Chest Physiotherapy, and Hyperinflation Therapy

Prerequisite

Program admission

Credit Hours

5

Contact Hours Per Week

Lab - 0

Class - 5

FUNDAMENTAL TECHNICAL

RES 102 - Foundations Of Respiratory Therapy

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
CHEMISTRY		**5**	**0**
Symbols	Identify the chemical symbols associated with therapeutic gases.		
Therapeutic gases	Explain the chemical principles associated with therapeutic gases.		
PHYSICS		**5**	**0**
Concepts and formulas	Explain the physical concepts and formulas associated with respiratory therapy.		
Computations	Perform computations for formulas associated with respiratory therapy.		
PROCESS, STORAGE, AND REGULATION OF MEDICAL GASES		**10**	**0**
Storage and regulation	Describe the procedures, laws, and processes associated with the storage and regulation of medical gases.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
INDICATIONS, HAZARDS, AND CONTRAINDICATIONS OF OXYGEN THERAPY, AEROSOL AND HUMIDITY THERAPY, CHEST PHYSIOTHERAPY, AND HYPERINFLATION THERAPY		**30**	**0**
Indications	Describe the indications and rational for oxygen therapy, aerosol and humidity therapy, chest physiotherapy, and hyperinflation therapy.		
Contradictions and hazards	Describe the contraindications and hazards of oxygen therapy, aerosol and humidity therapy, chest physiotherapy, and hyperinflation therapy.		

FUNDAMENTAL TECHNICAL

RES 102 - Foundations Of Respiratory Therapy

Resources

Barnes, T. A. (Ed.). (1988). *Respiratory care practice*. Chicago: Year Book Medical.

Burton, G. G., & Hodgkin, J. E. (Eds.). (1984). *Respiratory care: A guide to clinical practice* (2nd ed.). Philadelphia: Lippincott.

Deshpande, V. M. (1988). *Comprehensive respiratory therapy*. East Norwalk, CT: Appleton & Lange.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care*. St. Louis: C. V. Mosby.

Kacmerek, R. (1979). *The essentials of respiratory therapy*. Chicago: Year Book Medical.

Shapiro, B. A. (1985). *Clinical applications of respiratory care* (3rd ed.). Chicago: Year Book Medical.

Spearman, C. B., Sheldon, R. L., & Egan, D. F. (1988). *Egan's fundamentals of respiratory therapy* (5th ed.). St. Louis: C. V. Mosby.

FUNDAMENTAL TECHNICAL

RES 103 - Respiratory Therapy Equipment

Course Overview

Course Description

Examines the basic equipment used in therapeutic modalities with emphasis on equipment characteristics, assembly, disassembly, repair, and application to the patient. Topics include: oxygen therapy, aerosol and humidity therapy, chest physiotherapy, hyperinflation, oximetry, and concentrators and compressors.

Competency Areas

Oxygen Therapy
Aerosol and Humidity Therapy
Chest Physiotherapy
Hyperinflation
Oximetry
Concentrators and Compressors

Prerequisites/Corequisites

RES 101, RES 102

Credit Hours

5

Contact Hours Per Week

D.Lab - 5

Class - 3

FUNDAMENTAL TECHNICAL

RES 103 - Respiratory Therapy Equipment

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
OXYGEN THERAPY		**9**	**10**
Types	Describe various types of commonly used oxygen therepy equipment including oxygen analyzers.		
Function	Contrast the design and functional characteristics of various commonly used types of oxygen therapy equipment including oxygen analyzers.		
Operation	Operate locally available oxygen therapy equipment.		
	Generalize operational procedures applicable to most brands of oxygen therapy equipment.		
AEROSOL AND HUMIDITY THERAPY		**9**	**20**
Types	Describe various types of commonly used aerosol and humidity therapy equipment		
Function	Contrast the design and functional characteristics of various commonly used types of aerosol and humidity therapy equipment.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Operation	Operate locally available aerosol and humidity therapy equipment.		
	Generalize operational procedures applicable to most brands of aerosol and humidity therapy equipment.		
CHEST PHYSIOTHERAPY		**3**	**10**
Types	Describe various types of commonly used chest physiotherapy equipment		
Function	Contrast the design and functional characteristics of various commonly used types of chest physiotherapy equipment.		
Operation	Operate locally available chest physiotherapy equipment.		
	Generalize operational procedures applicable to most brands of chest physiotherapy equipment.		
HYPERINFLATION		**5**	**10**
Types	Describe various types of commonly used hyperinflation therapy equipment		
Function	Contrast the design and functional characteristics of various commonly used types of hyperinflation therapy equipment.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Operation	Operate locally available hyperinflation therapy equipment.		
	Generalize operational procedures applicable to most brands of hyperinflation therapy equipment.		
OXIMETRY		**3**	**0**
Types	Describe various types of commonly used oximetry equipment		
Function	Contrast the design and functional characteristics of various commonly used types of oximetry equipment.		
Operation	Operate locally available oximetry equipment.		
	Generalize operational procedures applicable to most brands of oximetry equipment.		
CONCENTRATORS AND COMPRESSORS		**1**	**0**
Types	Describe various types of commonly used concentrators and compressors equipment		
Function	Contrast the design and functional characteristics of various commonly used types of concentrators and compressors equipment.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Operation	Operate locally available concentrators and compressors equipment. Generalize operational procedures applicable to most brands of concentrators and compressors equipment.		

FUNDAMENTAL TECHNICAL

RES 103 - Respiratory Therapy Equipment

Resources

Barnes, T. A. (Ed.). (1988). *Respiratory care practice.* Chicago: Year Book Medical.

Barnes. (1988). *Respiratory therapy equipment* (3rd ed.). Chicago: Year Book Medical.

Deshpande, V. M. (1988). *Comprehensive respiratory therapy.* East Norwalk, CT: Appleton & Lange.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care.* St. Louis: C. V. Mosby.

Kacmerek, R. (1979). *The essentials of respiratory therapy.* Chicago: Year Book Medical.

McPherson, S. P. (1984). *Respiratory therapy equipment* (3rd ed.). St. Louis: C. V. Mosby.

SPECIFIC TECHNICAL

RES 104 - Cardiopulmonary Anatomy And Physiology

Course Overview

Course Description

Provides in-depth knowledge of the gross and histologic structure of the heart, lungs, and kidney. The physiology will emphasize function of the cardiopulmonary and renal systems at the cellular and molecular level. Topics include: embryoiogical cardiopulmonary development, pulmonary anatomy, cardiac anatomy and hemodynamics, renal anatomy, ventilation, control of ventilation, respiration and carbon dioxide transport, and arterial blood gases.

Competency Areas

Embryological Cardiopulmonary Development
Pulmonary Anatomy
Cardiac Anatomy and Hemodynamics
Renal Anatomy
Ventilation
Control of Ventilation
Respiration/Carbon Dioxide Transport
Arterial Blood Gases

Prerequisites

AHS 101, RES 101

Credit Hours

5

Contact Hours Per Week

Lab - 0

Class - 5

SPECIFIC TECHNICAL

RES 104 - Cardiopulmonary Anatomy And Physiology

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
EMBRYOLOGICAL CARDIOPULMONARY DEVELOPMENT		**5**	**0**
Developmental events during fetal life	Define embryonic period.		
	Describe the pseudoglandular period.		
	Describe the canalicular period.		
	Describe the terminal sac period.		
	Describe placental attachment, function, and components.		
	Describe fetal circulation, development and function.		
	Describe fetal fluids such as lung and amniotic fluid.		
	Describe the surfactant producing systems and the production of surfactant, enzyme systems.		
Cardiopulmonary transition from fetus to neonate	Describe the function and structure of the upper airway.		
	Describe the histology of the lower respiratory tract.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
	Explain the function of the lower respiratory tract.		
	Discuss pulmonary defense mechanisms.		
PULMONARY ANATOMY		**4**	**0**
Thoracic actions in breathing	List thoracic structures external to the lung.		
	Describe the function and structure of thoracic structures external to the lung including lymphatic system, ribs, muscles of respiration, cartilage, mediastinum, nerves and tendons, diaphragm, thoracic pressures, pleuras, and venous return.		
CARDIAC ANATOMY AND HEMODYNAMICS		**5**	**0**
Relationship of the anatomical structures of the heart to the body	Describe the structure and function of all components of the heart.		
	Describe the location and functon of the components of the conductive system of the heart.		
	Describe the components of the pulmonary and systemic vascular systems.		
	Explain blood flow and factors affecting blood flow.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
Relation of pressure to the cardiovascular system	Identify the types of cardiovascular pressures in the body including systemic BP and pulmonary pressures.		
Blood and blood components	Discuss the structure and function of blood.		
	Identify cellular and plasma components of blood.		
	Explain the function of the cellular and plasma components of blood.		
RENAL ANATOMY		**2**	**0**
Relation of the anatomical structures of the renal system to the body homeostasis	Identify the components of the renal anatomy.		
	Explain the function of the components of the renal anatomy.		
Function of the kidney	Relate blood flow to renal function.		
	Describe urine formation and acid-base balance.		
VENTILATION		**5**	**0**
Definition of ventilation	Explain the physical principles of ventilation.		
	Relate the principles of compliance and resistance to ventilation.		
	Describe the muscular physiology associated with ventilation.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
	Describe intrapleural relationships to ventilation.		
Types of ventilation	Differentiate between alveolar ventilation and varied types of dead space.		
	Calculate total ventilation, deadspace ventilation and alveolar ventilation.		
	List normal volumes associated with ventilation.		
	Describe varied types of patterns of ventilation.		
CONTROL OF VENTILATION		**7**	**0**
Central nervous system function in ventilation	Describe the function of the medulla oblongata, respiratory neurons, and pontine respiratory centers.		
	Relate the function of central and peripheral chemoreceptors to the effect on ventilation.		
Function of the peripheral nervous system	Differentiate between the efferent division and the afferent division and their function.		
	Describe the effect of H ion concentration (pH) on the peripheral nervous system.		
Reflexes affecting ventilation	Explain the Hering-Bruerer, deflation, and irritant reflexes and juxtapulmonary receptors (J receptors).		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
	Describe the aortic and carotid sinus baroreceptors affects.		
	List varied stimuli that affect ventilation.		
RESPIRATION/CARBON DIOXIDE/ TRANSPORT		**10**	**0**
External respiration	Compare respiration to ventilation.		
	Define gas laws affecting ventilation/ respiration.		
	Define external respiration.		
	Explain gas diffusion.		
Internal respiration	Define internal respiration.		
	Define oxygen transport and describe oxygen transport systems.		
	Discuss the structure, types, function, and binding of hemoglobin.		
	Outline the molecular transfer of oxygen from blood to tissue.		
	Describe the molecular uptake of oxygen by tissues.		
Plasma transfer of CO_2	Explain the molecular diffusion of CO_2 from the cell into plasms.		
	Explain the transport of CO_2 in plasma.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
Red blood cell uptake of CO_2	Explain movement of CO_2 from plasma to the red blood cell (RBC).		
	Explain the methods of CO_2 transport on the RBC.		
Chloride shift	Explain the Na+ Cl- exchange in venous blood and arterial blood.		
CO_2 removal	Explain CO_2 removal from the blood to the atmosphere.		
ARTERIAL BLOOD GASES		**12**	**0**
Ventilation/perfusion and gas exchange	Define ventilation/perfusion (V/Q) ratio.		
	Explain the variation of V/Q in the varied zones of the lung.		
	Describe the conditions associated with increased and decreased V/Q and their effect on end capillary gases.		
	Explain Ficks' Law, Henry's Law, and Graham's Law.		
Acid/base balance in arterial blood gases	Define acid, base, and the pH scale.		
	Explain chemical production of acid in the body.		
	Explain the chemical buffering systems in the body.		
	Discuss the roles of PCO_2/HCO_3/ pH in acid/base balance.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Oxygenation of the blood	Calculate alveolar air equations, O_2 content, total O_2 delivery, arterial/ venous O_2 content difference, O_2 consumption, and O_2 extraction ratio.		
	Explain the significance of alveolar air, O_2 content, total O_2 delivery, arterial/ venous O_2 content difference, O_2 consumption, and O_2 extraction ratio values.		
Hypoxia	List and define the varied types of hypoxia.		
	Define cyanosis.		
Shunting	List and define all shunts.		
	Calculate shunts.		
Blood gas interpretation	Assess metabolic disorders, respiratory disorders, and oxygenation disorders.		

SPECIFIC TECHNICAL

RES 104 - Cardiopulmonary Anatomy And Physiology

Resources

Anthony, C. P., & Thibodeau, G. A. (1983). *Textbook of anatomy and physiology*. St. Louis: C. V. Mosby.

Braun, H. A. (1980). *Introduction to respiratory physiology*. Boston: Little, Brown.

Des Jardins, T. R. (1988). *Cardiopulmonary anatomy and physiology: Essentials for respiratory care.* Albany, NY: Delmar.

Green, J. F. (1987). *Fundamental cardiovascular and pulmonary physiology* (2nd ed.). Philadelphia: Lee & Febiger.

Marieb, E. N. (1988). *Essentials of human anatomy and physiology*. (2nd ed.). Menlo Park, CA: Benjamin/Cummings.

Spearman, C. B., Sheldon, R. L., & Egan, D. F. (1988). *Egan's fundamentals of respiratory therapy* (5th ed.). St. Louis: C. V. Mosby.

SPECIFIC TECHNICAL

RES 106 - Pharmacology

Course Overview

Course Description

Introduces the basic concepts, measurements, and practices required for use of drugs in respiratory and related therapies. Topics include: guidelines of pharmacology, central and peripheral nervous system, respiratory drugs, and non-respiratory drugs.

Competency Areas

Guidelines of Pharmacology
Central and Peripheral Nervous System
Respiratory Drugs
Non-Respiratory Drugs

Prerequisites/Corequisites

MAT 103, RES 104

Credit Hours

5

Contact Hours Per Week

Lab - 0

Class - 5

SPECIFIC TECHNICAL

RES 106 - Pharmacology

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
GUIDELINES OF PHARMACOLOGY		**15**	**0**
Definition of pharmacology	Define the term pharmocology.		
	Explain the naming of drugs.		
	Identify sources of drug information.		
Systems of measurement	Explain the systems of measurement.		
	Explain metric system conversions.		
	Explain apothecary system conversions.		
	Perform conversions between metric, American, and apothecary systems.		
Pharmaceutical phase of drugs	List types and sources of medication.		
	Describe routes of drug administraton.		
	List methods of drug administration.		
Pharmacokinetic phase of drugs	Determine duration of medication via correlating routes of administration with prescribed forms of medication.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Pharmacodynamic phase of drugs	Collect clinical data necessary to assess patient status, determine appropriateness of prescribed medications, determine possible drug interaction, and recommend treatment schedule. Evaluate clinical data necessary to assess patient status, determine appropriateness of prescribed medications, determine possible drug interaction, and recommend treatment schedule.		
CENTRAL AND PERIPHERAL NERVOUS SYSTEM		**10**	**0**
Central and peripheral nervous systems	Explain brain anatomy and functioning. Explain spinal cord anatomy and function. Describe the components, function, and anatomy of the somatic division. Describe the anatomy, components, and functoin of the autonomic division.		
Neurotransmission	Describe neural pathways. Locate neural transmitters. Describe absorption, degreditation, excretion, and production of neural transmitting substances.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Describe the use of the neural transmitting substances.		
	Explain the functioning of these neural transmitters.		
Uses of autonomic nervous system drugs	Identify the action of sympathetic, parasympathetic, parasympatholytic, and sympatholytic drugs.		
	Differentiate between the actions of sympathetic, parasympathetic, parasympatholytic, and sympatholytic drugs.		
	Describe the beta receptor theory.		
	Describe the cyclic 3, 5 GMP cycle.		
RESPIRATORY DRUGS		**15**	**0**
Respiratory drugs and mode of action	Identify respiratory drugs including wetting agents, detergents, proteolytics, mucolytics, bronchial dilators, beta drugs, alpha drugs, xanthines, steroids, antiviral agents, antibiotics, anesthetic agents, and tuberculin agents.		
	Describe the mode of action of respiratory drugs including wetting agents, detergents, proteolytics, mucolytics, bronchial dilators, beta drugs, alpha drugs, xanthines, steroids, antiviral agents, antibiotics, anesthetic agents, and tuberculin agents.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
Relationship of respiratory drugs to clinical respiratory therapy	Explain the use of respiratory drugs in the following clinical respiratory therapies: hydration, bronchial dilitation, viral management, secretion management, treatment of mucosal edema, muscular function treatment with use of xanthines or bronchial dilators, pulmonary edema management, and AIDS management.		
NON-RESPIRATORY DRUGS		**10**	**0**
Anti-infective agents	Describe antibiotics.		
	Describe antiviral agents.		
Skeletal muscle relaxants	List depolarizing agents.		
	Identify the use and function of depolarizing agents.		
	List non-depolarizing agents.		
	Describe the use and function of non-depolarizing agents.		
Cardiovascular agents	List contractility agents.		
	Describe the use and function of contractility agents.		
	List vasopressors and vasodilators.		
	Describe the use and function of vasopressors and vasodilators.		
	List beta blockers.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Describe the use and function of beta blockers.		
	List anesthetic agents.		
	Identify the use and function of anesthetic agents.		
Renal agents	List diuretics.		
	Describe the use and function of diuretics.		
Neuromuscular agents	Identify the use and function of tenslion and levodopa.		
Anti-inflammatory and anti-fungal agents	Describe the use and function of steriods and non-steroidal agents.		
	Describe the use of prostaglandin with anti-inflammatory agents.		
Central nervous system stimulants and depressants	Differentiate narcotics, barbiturates, tranquilizers, analeptics, xanthines, and carbonic anhydrase inhibitors by comparing their use and function.		

SPECIFIC TECHNICAL

RES 106 - Pharmacology

Resources

Burton, G. G., & Hodgkin, J. E. (Eds.). (1984). *Respiratory care: A guide to clinical practice* (2nd ed.). Philadelphia: Lippincott.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care.* St. Louis: C. V. Mosby.

Ganderton, D., & Jones, T. (1988). *Drug delivery to the respiratory tract.* New York: VCH.

Hollinger, M. A. (1985). *Respiratory pharmacology & toxicology.* Philadelphia: W. B. Saunders.

Rau, J. L. (1989). *Respiratory care pharmocology* (3rd ed.). Chicago: Year Book Medical.

Shapiro, B. A. (1985). *Clinical applications of respiratory care* (3rd ed.). Chicago: Year Book Medical.

Spearman, C. B., Sheldon, R. L., & Egan, D. F. (1988). *Egan's fundamentals of respiratory therapy* (5th ed.). St. Louis: C. V. Mosby.

Wilson, J. D. (1987). *Drug use in respiratory disease.* Baltimore, MD: Williams & Wilkins.

Woodrow, R. (1987). *Essentials of pharmocology for health occupations.* New York: John Wiley & Sons.

SPECIFIC TECHNICAL

RES 107 - Patient Assessment

Course Overview

Course Description

Introduces the fundamental concepts, knowledge, and data interpretation required to accurately determine the condition of the patient. Topics include: physical exam of chest, arterial blood gases, lab data, and radiology.

Competency Areas

Physical Exam of Chest
Arterial Blood Gases
Lab Data (Values)
Radiology

Prerequisite/Corequisite

RES 104

Credit Hours

2

Contact Hours Per Week

D.Lab - 1

Class - 2

SPECIFIC TECHNICAL

RES 107 - Patient Assessment

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
PHYSICAL EXAM OF CHEST		**5**	**3**
Physical assessment of chest	Describe techniques for inspection, palpation, percussion, and auscultation.		
	Compare normal to abnormal findings from the physical examination of the chest.		
ARTERIAL BLOOD GASES		**6**	**3**
Techniques for arterial puncture	Describe various techniques for drawing arterial blood gases.		
	Relate hazards of drawing arterial blood gases to potential complications.		
Arterial blood gas equipment	Identify commonly used arterial blood gas equipment.		
	Discuss the use of arterial blood gas equipment.		
Interpretation of arterial blood gas	Relate the condition of arterial blood gases to assessment of patient status.		
LAB DATA (VALUES)		**5**	**2**
Basic lab data	Relate blood chemistry values to assessment of patient status.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
RADIOLOGY		**4**	**2**
Basic x-ray interpretation	Discuss the characteristics of a normal chest x-ray. Identify abnormalities in chest x-rays. Relate abnormal findings in chest x-rays to patient assessment.		

SPECIFIC TECHNICAL

RES 107 - Patient Assessment

Resources

Burton, G. G., & Hodgkin, J. E. (1984). *Respiratory care: A guide to clinical practice* (2nd ed.). Philadelphia: Lippincott.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care.* St. Louis: C. V. Mosby.

Op't, Holt, T. B. (1986). *Assessment-based respiratory care.* New York: Wiley.

Shapiro, B. A. (1985). *Clinical applications of respiratory care* (3rd ed.). Chicago: Year Book Medical.

Wilkins, R. L. (1985). *Clinical assessment in respiratory care.* St. Louis: C. V. Mosby.

SPECIFIC TECHNICAL

RES 108 - Patient Monitoring

Course Overview

Course Description

Utilizes the information derived from patient assessment and introduces methods of monitoring the condition of the patient. This course provides instruction appropriate to the needs of respiratory therapy technicians. Topics include: electrocardiographs (EKG), an introduction to basic hemodynamic monitoring, and respiratory monitoring.

Competency Areas

Electrocardiographs (EKGs)
Basic hemodynamic monitoring
Respiratory monitoring

Prerequisite/Corequisite

RES 107

Credit Hours

2

Contact Hours Per Week

D.Lab - 1

Class - 2

SPECIFIC TECHNICAL

RES 108 - Patient Monitoring

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
ELECTROCARDIOGRAPHS (EKGS)		**3**	**2**
Introduction to EKG's	Differentiate between normal EKG's and arrhythmias.		
BASIC HEMODYNAMIC MONITORING		**7**	**3**
Introduction to hemodynamic monitoring	Discuss the relevance of hemodynamic monitoring to respiratory therapy. Differentiate between normal and abnormal hemodynamic values. Discuss commonly used methods of hemodynamic monitoring. Describe the procedures required for commonly used methods of hemodynamic monitoring. Describe commonly used equipment for hemodynamic monitoring.		
RESPIRATORY MONITORING		**10**	**5**
Procedures for respiratory monitoring	Discuss the relevance of respiratory monitoring to respiratory therapy.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Differentiate between normal and abnormal respiratory values.		
	Discuss commonly used methods of respiratory monitoring.		
	Describe the procedures required for commonly used methods of respiratory monitoring.		
	Describe commonly used equipment for respiratory monitoring.		
	Compare normal and abnormal values resulting from respiratory monitoring procedures.		

SPECIFIC TECHNICAL

RES 108 - Patient Monitoring

Resources

Burton, G. G., & Hodgkin, J. E. (1984). *Respiratory care: A guide to clinical practice* (2nd ed.). Philadelphia: Lippincott.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care*. St. Louis: C. V. Mosby.

Op't, Holt, T. B. (1986). *Assessment-based respiratory care*. New York: Wiley.

Shapiro, B. A. (1985). *Clinical applications of respiratory care* (3rd ed.). Chicago: Year Book Medical.

Wilkins, R. L. (1985). *Clinical assessment in respiratory care*. St. Louis: C. V. Mosby.

SPECIFIC TECHNICAL

RES 109 - Airway Management

Course Overview

Course Description

Introduces techniques for emergency and long term airway management. Proper placement and care of artificial airways will be emphasized. Topics include: artificial airways, principles of airway suctioning, and manual resuscitators.

Competency Areas

Artificial Airways
Principles of Airway Suctioning
Manual Resuscitators

Prerequisite/Corequisite

RES 104

Credit Hours

2

Contact Hours Per Week

D.Lab - 1

Class - 2

SPECIFIC TECHNICAL

RES 109 - Airway Management

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
ARTIFICIAL AIRWAYS		**10**	**8**
Types of Artificial Airways	Explain the rational for using artificial airways.		
	Differentiate between the types of artificial airways.		
Techniques for airway management	Describe the proper techniques for inserting and removing artificial airways.		
	Discuss the role of the clinician in airway management.		
Complications of artificial airways	Compare the hazards to the complications associated with artificial airways.		
PRINCIPLES OF AIRWAY SUCTIONING		**5**	**2**
Techniques for suctioning	Describe a functional suctioning system.		
	Perform sterile suctioning according to recommended procedures.		
Complications of suctioning	Compare the hazards to the complications associated with suctioning.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
MANUAL RESUSCITATORS		**5**	**0**
Types of manual resuscitators	Differentiate between types of manual resuscitators.		
	Identify J.A.M.A. standards for manual resuscitators.		
Techniques for manual resuscitation	Describe the proper techniques for using manual resuscitators.		
Complications of manual resuscitators	Relate the hazards to the complications of manual resuscitation.		

SPECIFIC TECHNICAL

RES 109 - Airway Management

Resources

Burton, G. G., & Hodgkin, J. E. (Eds.). (1984). *Respiratory care: A guide to clinical practice* (2nd ed.). Philadelphia: Lippincott.

Deshpande, V. M. (1988). *Comprehensive respiratory therapy*. East Norwalk, CT: Appleton & Lange.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care*. St. Louis: C. V. Mosby.

Finucane, B. T., & Santora, A. H. (1988). *Principles of airway management*. Philadelphia: F. A. Davis.

Kacmerek, R. (1979). *The essentials of respiratory therapy*. Chicago: Year Book Medical.

Shapiro, B. A. (1985). *Clinical applications of respiratory care* (3rd ed.). Chicago: Year Book Medical.

Spearman, C. B., Sheldon, R. L., & Egan, D. F. (1988). *Egan's fundamentals of respiratory therapy* (5th ed.). St. Louis: C. V. Mosby.

SPECIFIC TECHNICAL

RES 110 - Microbiology

Course Overview

Course Description

Applies the basic principles of microbiology to the field of respiratory therapy. Emphasis will be placed on the role of the respiratory care practitioner in various hospital functions. Topics include: microbial identification, microbial growth and transmission, host defense mechanisms, hospital infection control, aseptic techniques, and disinfection and sterilization.

Competency Areas

Microbial Identification
Microbial Growth and Transmission
Host Defense Mechanisms
Hospital Infection Control

Prerequisites

AHS 109, RES 103

Credit Hours

3

Contact Hours Per Week

Lab - 0

Class - 3

SPECIFIC TECHNICAL

RES 110 - Microbiology

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
MICROBIAL IDENTIFICATION		**10**	**0**
Major groups of microorganisms	Describe the characteristics of fungi, protozoa, algae, bacteria, and viruses. Identify examples of the five major groups of microorganisms including fungi, protozoa, algae, bacteria, and viruses.		
Common microbes	Identify examples of staphlococci; streptococci, including streptococcus pneumoneae; neisseria; spirochetes; tuberculin bacillus; clostridium; mycobacteria; hemophilus; enteric and related - gram negative bacilli; opportunistic pathogens; fungi; protozoa; and herpes, hepatitis; influenza, and respiratory syncytial viruses. Describes characteristics of staphlococci; streptococci, including streptococcus pneumoneae; neisseria; spirochetes; bacillus; clostridium; mycobacteria; hemophilus; enteric and related - gram negative bacilli; opportunistic pathogens; fungi; protozoa; and herpes, hepatitis; influenza, and respiratory synsitial viruses.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
MICROBIAL GROWTH AND TRANSMISSION		**5**	**0**
Growth	Describe the growth of microbes.		
	Identify the nutrients needed for the growth of microbes.		
Transmission	Discuss host-parasite relationships.		
	Describe normal microbial flora.		
	Discuss transmission of microorganisms.		
HOST DEFENSE MECHANISMS		**5**	**0**
Nonspecific defense mechanisms	Discuss nonspecific, external host defense mechanisms.		
	Discuss nonspecific, internal host defense mechanisms.		
Acquired immune response	Describe acquired immuned responses.		
	Describe the application of the immune response.		
HOSPITAL INFECTION CONTROL		**10**	**0**
Terminology	Define the terms applicable to the control of microorganisms.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Physical control	Discuss physical procedures for microbial control including moist heat under pressure, moist heat not under pressure, dry heat, ultraviolet light, ionizing radiation, and filtration.		
Chemical control	Discuss chemical factors affecting disinfectants.		
	Describe the characteristics of major groups of chemical disinfectants.		
Quality control	Outline the quality control practices performed in hospitals and respiratory therapy departments.		

SPECIFIC TECHNICAL

RES 110 - Microbiology

Resources

Ferris, E. B., & Fong, E. (1982). *Microbiology for health careers* (2nd ed.). Albany, NY: Delmar.

Jensen, M. M., & Wright, D. W. (1989). *Introduction to medical microbiology* (2nd ed.). Englewood, NJ: Prentice Hall.

McLaughlin, A. J. (1983). *Manual of infection control in respiratory care*. Boston: Little, Brown.

Tortora, G. J., Funke, B. R., & Case, C. L. (1986). *Microbiology: An introduction* (2nd ed.). Boston: Benjamin/Cummings.

SPECIFIC TECHNICAL

RES 111 - Pathophysiology

Course Overview

Course Description

Investigates the causes and effects of respiratory disease, failure, and trauma. This course provides an essential theoretical basis for understanding respiratory therapy methodologies. Topics include: obstructive pulmonary disease, restrictive lung disease, neuromuscular disease, infections, and respiratory failure/trauma.

Competency Areas

Obstructive Pulmonary Disease
Restrictive Lung Disease
Neuromuscular Disease
Infections
Respiratory Failure/Trauma

Prerequisites/Corequisites

RES 106, RES 108, RES 110

Credit Hours

6

Contact Hours Per Week

Lab - 0

Class - 6

SPECIFIC TECHNICAL

RES 111 - Pathophysiology

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
OBSTRUCTIVE PULMONARY DISEASE		**15**	**0**
Clinical data for chronic obstructive pulmonary disease (COPD)	Define chronic obstructive pulmonary disease.		
	Relate pulmonary functioning tests to chronic obstructive pulmonary disease.		
	Relate arterial blood gas values to chronic obstructive pulmonary disease.		
	Describe pathologic and histologic changes resultant from chronic obstructive pulmonary disease.		
	Relate ventilation/perfusion (V/Q), diffusion effects, to obstructive lung disease.		
	Describe cardiovascular effects resultant from obstructive lung disease.		
Disease classified as COPD	Describe asthma, bronchitis, bronchiectasis, mucoviscidosis, and emphysema.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
RESTRICTIVE LUNG DISEASE		**15**	**0**
Clinical data for restrictive lung disease	Define restrictive lung disease.		
	Relate pulmonary function tests to restrictive lung diseases.		
	Relate arterial blood gas values to restrictive lung diseases.		
	Relate ventilation/perfusion (V/Q), diffusion effects, to restrictive lung disease.		
	Describe cardiovascular effects resultant from restrictive lung disease.		
Causes of and therapy for restrictive lung disease	List clinical conditions producing restrictive pulmonary disease.		
	Describe the relationship between restrictive lung disease and the following: pneumoconiosis, sarcoidosis, collagen diseases, obesity, liver disease, pregnancy, anatomical anomolies, pneumonia, aspiration, tumors, and hernias.		
	Describe the therapy to improve respiratory function in cases involving pneumoconiosis, sarcoidosis, collagen diseases, obesity, liver disease, pregnancy, anatomical anomolies, pneumonia, aspiration, tumors, and hernias.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
NEUROMUSCULAR DISEASE		**10**	**0**
Clinical data for respiratory function in neuromuscular conditions	Relate pulmonary function tests to respiratory function in neuromuscular conditions.		
	Describe pathologic changes that occur in neuromuscular diseases.		
	Describe pathologic changes that occur in neuromuscular conditions.		
Causes of and respiratory therapy for neuromuscular disease	List clinical conditions producing neuromuscular disease.		
	Describe the relationship between respiratory function and polio, myesthenia gravis, guillian barre, muscular dystrophy, spinal cord trauma, drug overdose, and pleural disease.		
	Describe the therapy to improve respiratory function in cases involving polio, myesthenia gravis, guillian barre, muscular dystrophy, spinal cord trauma, drug overdose, and pleural disease.		
INFECTIONS		**5**	**0**
Infectious diseases	Identify microorganisms associated with infectious diseases.		
	Describe respiratory implications of infectious diseases.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
	Describe cardiac and renal implications of infectious diseases such as histoplasmosis, coccidioidomycosis, blastomycosis, cryptococcus, candida albicans, and aspergillosis.		
Prevention and treatment of infectious clinical conditions	Describe the prevention and treatment of the following conditions mycobacteria infections, fungal infections, AIDS, pneumocystosis, cytomegalovirus (CMV), neoplasms, hepatitis, and tetanus.		
RESPIRATORY FAILURE/TRAUMA		**15**	**0**
Clinical data for respiratory failure	Define respiratory failure.		
	Identify the pathological changes associated with respiratory failure.		
	Describe clinical data associated with respiratory failure.		
Conditions producing cardiogenic pulmonary edema	Define arrhythmias, left heart failure, right heart failure, valve disease, MI, hypertension, pulmonary embolism, and renal failure.		
	Explain the way in which arrhythmias, left heart failure, right heart failure, valve disease, MI, hypertension, pulmonary embolism, and renal failure produce cardiogenic pulmonary edema.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
ARDS	Define ARDS.		
	List the clinical manifestations of ARDS.		
	Describe treatment for ARDS.		
Effects of renal system failure on the pulmonary system	Describe the effect of renal system failure on the pulmonary system.		
	Identify causes of renal failure.		
	Explain acid/base balance in renal system failure.		
	Discuss respiratory treatment in cases of renal system failure.		
Effects of drowning on the pulmonary system	List the effects of salt water on the pulmonary system.		
	List the effects of fresh water on the pulmonary system.		
	Explain the treatment/prognosis in cases of drowning.		
Effects of pulmonary toxicants on the pulmonary system	Describe the effects of carbon monoxide on the pulmonary system.		
	Describe the effects of paraquat on the pulmonary system.		
	Describe the effects of oxygen on the pulmonary system.		
	Describe the effects of cyanide on the pulmonary system.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Effects of chest trauma on pulmonary system	Describe the effects of chest injuries, such as flail, on the pulmonary system. Describe the effects of diaphragmatic injuries on the pulmonary system. Describe the effects of chest wounds, pneumothorax, on the pulmonary system.		

SPECIFIC TECHNICAL

RES 111 - Pathophysiology

Resources

Bates, D. V. (1989). *Respiratory function in disease.* (3rd ed.). Philadelphia: W. B. Saunders.

Des Jardins, T. (1987). *Clinical manifestations of respiratory disease.* Chicago: Year Book Medical.

Farzan & Sattar. (1988). *A concise handbook of respiratory diseases* (2nd ed.). East Norwalk, CT: Appleton and Lange.

Montenegro, H. D. (Ed.). (1984). *Chronic obstructive pulmonary disease.* New York: Churchill Livingston.

West, J. B. (1987). *Pulmonary pathophysiology: The essentials.* Baltimore, MD: Williams & Wilkins.

Will, J. A. (Ed.). (1987). *The pulmonary circulation in health and disears.* Orlando, FL: Academic Press.

SPECIFIC TECHNICAL

RES 113 - Mechanical Ventilation

Course Overview

Course Description

Develops an understanding of the concepts of positive pressure breathing and the principles of mechanical ventilator design and operation. Topics include: concepts of mechanical ventilation; classification of ventilators; indications, effects, and hazards of mechanical ventilation; and monitoring/weaning.

Competency Areas

Concepts of Mechanical Ventilation
Classification of Ventilators
Indications, Effects, and Hazards
of Mechanical Ventilation
Monitoring/Weaning

Prerequisite

RES 103

Prerequisites/Corequisites

RES 108, RES 109

Credit Hours

4

Contact Hours Per Week

Lab - 0

Class - 4

SPECIFIC TECHNICAL

RES 113 - Mechanical Ventilation

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
CONCEPTS OF MECHANICAL VENTILATION		**10**	**0**
Methods of ventilation	Describe normal spontaneous ventilation.		
	Compare positive and negative ventilation.		
CLASSIFICATION OF VENTILATORS		**10**	**0**
Design and functional characteristics of mechanical ventilators	Discuss various power/drive mechanisms of mechanical ventilators.		
	Describe triggering and cycling of mechanical ventilators.		
	Classify mechanical ventilators according to design and functional characteristics.		
Modes of ventilation	Differentiate between various modes of ventilation.		
	Describe inspiratory/expiratory maneuvers.		
	Discuss specialized modes of ventilation.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
INDICATIONS, EFFECTS, AND HAZARDS OF MECHANICAL VENTILATION		**10**	**0**
Indications for mechanical ventilation	Discuss causes of respiratory failure leading to the need for mechanical ventilation.		
	Describe criteria for initiating mechanical ventilation.		
Effects and hazards of mechanical ventilation	Explain the effects and complications of mechanical ventilation.		
MONITORING/WEANING		**10**	**0**
Techniques for ventilator monitoring	Explain techniques for ventilator monitoring.		
	Discuss the role of the clinician in ventilator management.		
Techniques for patient weaning	Explain techniques for patient weaning.		
	Discuss the role of the clinician in ventilator weaning.		
	Describe criteria for initiating patient weaning from mechanical ventilation.		

SPECIFIC TECHNICAL

RES 113 - Mechanical Ventilation

Resources

Barnes, T. A. (Ed.). (1988). *Respiratory care practice*. Chicago: Year Book Medical.

Barnes. (1988). *Respiratory therapy equipment* (3rd ed.). Chicago: Year Book Medical.

Burton, G. G., & Hodgkin, J. E., (Eds.). (1984). *Respiratory care: A guide to clinical practice* (2nd ed.). Philadelphia: Lippincott.

Deshpande, V. M. (1988). *Comprehensive respiratory therapy*. East Norwalk, CT: Appleton & Lange.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care*. St. Louis: C. V. Mosby.

Kacmerek, R. (1979). *The essentials of respiratory therapy*. Chicago: Year Book Medical.

McPherson, S. P. (1984). *Respiratory therapy equipment* (3rd ed.). St. Louis: C. V. Mosby.

Shapiro, B. A. (1985). *Clinical applications of respiratory care* (3rd ed.). Chicago: Year Book Medical.

Spearman, C. B., Sheldon, R. L., & Egan, D. F. (1988). *Egan's fundamentals of respiratory therapy* (5th ed.). St. Louis: C. V. Mosby.

SPECIFIC TECHNICAL

RES 114 - Mechanical Ventilators

Course Overview

Course Description

Applies the concepts from Mechanical Ventilation. Emphasis during this course will be placed on the monitoring and management of the patient/ventilator system. Additionally, there will be instruction in ventilation I. Topics include: operation of adult ventilators, operation of neonatal/pediatric ventilators, and maintenance and troubleshooting.

Competency Areas

Operation of Adult Ventilators
Operation of Neonatal/Pediatric Ventilators
Maintenance and Troubleshooting

Prerequisite/Corequisite

RES 113

Credit Hours

3

Contact Hours Per Week

D.Lab - 6

Class - 0

SPECIFIC TECHNICAL

RES 114 - Mechanical Ventilators

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
OPERATION OF ADULT VENTILATORS		**0**	**30**
Adult bellow-driven ventilators	Compare the design and functional characteristics of various bellow-driven ventilators.		
Adult pneumatic and piston-driven ventilators	Compare the design and functional characteristics of various pneumatic and piston-driven ventilators.		
OPERATION OF NEONATAL/ PEDIATRIC VENTILATORS		**0**	**10**
Pediatric/neonatal time-limited ventilators	Compare the design and functional characteristics of various pediatric/ neonatal time-limited ventilators.		
Pediatric/neonatal pneumatic and piston-driven ventilators	Compare the design and functional characteristics of various pediatric/neonatal pneumatic and piston-driven ventilators.		
MAINTENANCE AND TROUBLESHOOTING		**0**	**20**
Principles of ventilator maintenance	Explain principles of ventilator maintenance.		
	Explain principles of troubleshooting.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Describe the role of the clinician in ventilator maintenance/ troubleshooting.		

SPECIFIC TECHNICAL

RES 114 - Mechanical Ventilators

Resources

Barnes, T. A. (Ed.). (1988). *Respiratory care practice*. Chicago: Year Book Medical.

Barnes. (1988). *Respiratory therapy equipment* (3rd ed.). Chicago: Year Book Medical.

Burton, G. G., & Hodgkin, J. E. (Eds.). (1984). *Respiratory care: A guide to clinical practice* (2nd ed.). Philadelphia: Lippincott.

Deshpande, V. M. (1988). *Comprehensive respiratory therapy*. East Norwalk, CT: Appleton & Lange.

Eubanks, D. H., & Bone, R. (1985). *Comprehensive respiratory care*. St. Louis: C. V. Mosby.

Kacmerek, R. (1979). *The essentials of respiratory therapy*. Chicago: Year Book Medical.

McPherson, S. P. (1984). *Respiratory therapy equipment* (3rd ed.). St. Louis: C. V. Mosby.

Shapiro, B. A. (1985). *Clinical applications of respiratory care* (3rd ed.). Chicago: Year Book Medical.

Spearman, C. B., Sheldon, R. L., & Egan, D. F. (1988). *Egan's fundamentals of respiratory therapy* (5th ed.). St. Louis: C. V. Mosby.

SPECIFIC TECHNICAL

RES 115 - Introduction To Pulmonary Function Testing

Course Overview

Course Description

Provides students with the basic concepts and technology involved in pulmonary function testing. This course provides instruction appropriate to the needs of respiratory therapy technicians. Topics include: value of pulmonary function testing, measurements, equipment, and interpretation.

Competency Areas

Value of Pulmonary Function Testing
Measurements
Equipment
Interpretation

Prerequisites

RES 102, RES 111

Credit Hours

1

Contact Hours Per Week

D.Lab - 1

Class - 1

SPECIFIC TECHNICAL

RES 115 - Introduction To Pulmonary Function Testing

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
VALUE OF PULMONARY FUNCTION TESTING		**2**	**0**
Clinical use of pulmonary function testing	Classify lung disease. Explain the rational for pulmonary function testing.		
MEASUREMENTS		**4**	**4**
Volumes and flows	Contrast flow volume loops and spirometry tracings. Discuss lung volume measurements, SVC, FVC, FEVt, FEFx-y, FEFx, PEFR, MVV, and diffusion studies.		
Specialized studies	Describe specialized pulmonary function tests (PFT's).		
EQUIPMENT		**1**	**3**
Equipment used in pulmonary function testing	Compare pulmonary function testing equipment including H_2O seal, dry-roll seal, and bellows spirometers and valve/gear, pressure-drop, heat transfer, and vortex shedding pneumotachometers.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Accessory equipment used in pulmonary function testing	Describe accessory equipment used in pulmonary function testing including giesler tube, thermal conductivity mass specrometer, infared pulmonary gas analyzers; pH, PO_2, and PCO_2 blood gas electrodes; transcutaneous monitors; and oximeters.		
INTERPRETATION		**3**	**3**
Pulmonary function testing results	Discuss interpretation of pulmonary function test results concerning the disease process, gas diffusion, and pre and post bronchodialators. Differentiate between various pulmonary function test results including restrictive and obstructive.		

SPECIFIC TECHNICAL

RES 115 - Introduction To Pulmonary Function Testing

Resources

Gibson, G. J. (1984). *Clinical tests of respiratory function*. New York: Raven.

Miller, A. (1987). *A student's guide to pulmonary function tests*. Wilkinsonville, MA: Grune & Stratton.

Ruppel. (1986). *Manual for pulmonary function testing* (4th ed.). St. Louis: C. V. Mosby.

Witkowski. (1984). *Pulmonary assessment: A clinical guide*. Philadelphia: Lippincott.

SPECIFIC TECHNICAL

RES 116 - Neonatal/Pediatric Respiratory Care

Course Overview

Course Description

Introduces the basic modes of respiratory care for neonatal and pediatric patients. Such areas as normal growth and development, normal anatomy and physiology, pathophysiology, therapy, and equipment will be covered. Topics include: normal growth and development, transition to extrauterine life, assessment of the newborn, normal neonatal anatomy and physiology, common neonatal and pediatric pathophysiology, and treatment methods.

Competency Areas

Normal Growth and Development
Transition to Extrauterine Life
Assessment of the Newborn
Normal Neonatal Anatomy and Physiology
Common Neonatal and Pediatric Pathophysiology
Treatment Methods

Prerequisite/Corequisite

RES 113

Credit Hours

4

Contact Hours Per Week

Lab - 0

Class - 4

SPECIFIC TECHNICAL

RES 116 - Neonatal/Pediatric Respiratory Care

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
NORMAL GROWTH AND DEVELOPMENT		**2**	**0**
Fertilization	Describe the process of fertilization.		
	Differentiate between meiosis and mitosis.		
	Describe DNA and RNA.		
	Describe implantation.		
Embryological development	Explain the events of the first trimester of embryological development.		
	Explain the events of the second trimester of embryological development.		
	Explain the events of the third trimester of embryological development.		
Fetal assessment	List fetal assessment procedures and/or techniques.		
	Assess fetal maturation by examination of chemical and cellular constituients.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Relate fetal assessment to asphyxiation.		
TRANSITION TO EXTRAUTERINE LIFE		**4**	**0**
Birth process	Contrast the vaginal and cesarean's effects on delivery of the neonate.		
Cardiopulmonary transitions	Contrast pulmonary vascular resistance and systemic vascular resistances prior to and after birth.		
	Describe pulmonary blood flow changes at birth.		
	Describe cardiac blood flow changes at birth.		
ASSESSMENT OF THE NEWBORN		**4**	**0**
APGAR	List the five parameters considered in an APGAR assessment.		
	Describe specific APGAR evaluation values.		
	Calculate APGAR scores.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
Normal and abnormal physiological or anatomical traits	Explain the following normal and abnormal parameters that must be evaluated in assessment of the newborn: meconium stain; gesational age; narcotic depression; herpes; AIDS; maternal history; delivery assessment; blood volume evaluation; muscoloskeletal, urinary, and neurologic evaluation, and body temperature.		
NORMAL NEONATAL ANATOMY AND PHYSIOLOGY		**2**	**0**
Neonatal and pediatric anatomy	Compare the airway location and laryneal variances in neonatal and pediatric anatomy. Compare the uppper airway ventilation in neonatal and pediatric anatomy.		
Lung volumes for neonates, children, and adults	Describe the growth of the lung from birth to adulthood. Describe changes in lung volumes associated with growth.		
Neonatal and pediatric blood gases	Identify normal neonatal values for hemoglobin (HgB) and carrying capacity and transition of fetal hemoglobin (FHgB) to adult hemoglobin (AHgB).		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Identify normal pediatric values for hemoglobin (HgB) and carrying capacity and transition of fetal hemoglobin (FHgB) to adult hemoglobin (AHgB.)		
COMMON NEONATAL AND PEDIATRIC PATHOPHYSIOLOGY		**22**	**0**
Neonatal disorders	Explain the physiological complications associated with asphyxia neonatorum.		
	Explain the complications associated with prematurity.		
	Describe transient tachypnea in neonates.		
	Describe anatomic anomalies in neonates.		
	Describe apnea in neonates.		
Results of medical intervention and infectious disease in neonates	Describe conditions that may result from pneumonia in neonates.		
	Describe conditions that may result from respiratory syncytial virus in neonates.		
	Describe conditions that may result from aspiration in neonates.		
	Describe conditions that may result from oxygen toxicity in neonates.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Describe conditions that may result in broncho-pulmonary dysplasia (BPD) in neonates.		
Pediatric diseases	Describe bronchiolotis in pediatric cases.		
	Describe asthma in pediatric cases.		
	Describe airway obstruction in pediatric cases.		
	Describe epiglottis in pediatric cases.		
	Describe croup in pediatric cases.		
	Describe bordetella pertussis in pediatric cases.		
	Describe Reyes syndrome in pediatric cases.		
	Describe cystic fibrosis in pediatric cases.		
TREATMENT METHODS		**6**	**0**
Neonatal resuscitation	Describe the effects of shock on neonatal resuscitation.		
	Describe the implications of meconium staining, APGAR, and maturity in neonatal resuscitation.		
	Explain airway and fluids management in neonatal resuscitation.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Neonatal/pediatric aerosol therapy	Identify administration methods used in neonatal/pediatric aerosol therapy.		
	Describe the disease states that indicate neonatal/pediatric aerosol therapy.		
	Describe the fluid overload and other conditions that contraindicate neonatal/pediatric aerosol therapy.		
Neonatal/pediatric oxygen therapy	Identify methods of adminstration for neonatal/pediatric oxygen therapy.		
	Intepret neonatal blood gas values.		
	Discuss the indications and contraindications of neonatal/ pediatric oxygen therapy.		
	Explain the role of continuous positive airway pressure (CPAP) in neonatal/pediatric oxygen therapy.		
Neonatal/pediatric physical therapy	Discuss the role of neonatal/pediatric chest physical therapy.		
Neonatal/pediatric ventilation	Describe neonatal/pediatric intubation.		
	Describe neonatal/pediatric ventilator set-up.		
	Describe use of pressure or time-cycled ventilators for neonatal/ pediatric cases.		

SPECIFIC TECHNICAL

RES 116 - Neonatal/Pediatric Respiratory Care

Resources

Burgess, W. R., & Cherniack, N. S. (1986). *Respiratory therapy in newborn children and infants* (2nd ed.). New York: Thieme Medical.

Hirnle, R. W. (1982). *Clinical simulations in neonatal respiratory therapy*. New York: John Wiley & Sons.

Lough, M. D. (1979). *Newborn respiratory care*. Chicago: Year Book Medic.

Milner, A. D., & Martin, R. (1985). *Neonatal and pediatric respiratory medicine*. Stoneham, MA: Butterworth's Medical.

Nussbaum, E. (Ed.). (1983). *Pediatric respiratory disorders: Clinical approaches*. Orlando, FL: Grune & Stratton.

Sansone, D. M., & Grundy, E. E. (1985). *Newborn respiratory care: An equipment lab manual*. East Norwalk, CT: Appleton & Lange.

Slonium, N. B., Schneider, S. N., Wing, & Fields. (1974). *Introduction to pediatric respiratory therapy*. Chicago: Year Book Medical.

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SPECIFIC TECHNICAL

RES 117 - Pulmonary Rehabilitation

Course Overview

Course Description

Presents the techniques involved in caring for chronically ill patients and teaches the skills needed for direct patient care in the home or rehabilitation setting. Topics include: concepts of pulmonary rehabilitation, pulmonary rehabilitation education, and therapeutic modalities.

Competency Areas

Concepts of Pulmonary Rehabilitation
Pulmonary Rehabilitation Education
Therapeutic Modalities

Prerequisites

RES 114, RES 115

Credit Hours

1

Contact Hours Per Week

D.Lab - 1

Class - 1

SPECIFIC TECHNICAL

RES 117 - Pulmonary Rehabilitation

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
CONCEPTS OF PULMONARY REHABILITATION		**5**	**0**
Significance of pulmonary rehabilitation	Describe the financial benefits of pulmonary rehabilitation.		
	Describe the limitations and costs of pulmonary rehabilitation.		
	Identify providers of pulmonary rehabilitation programs.		
Purpose of pulmonary rehabilitation	Identify the purpose of pulmonary rehabilitation.		
	Describe diagnosis related groups (DRG's).		
PULMONARY REHABILITATION EDUCATION		**4**	**1**
Psychological view	Characterize the patient's view of pulmonary rehabilitation.		
	Characterize the family's view of pulmonary rehabilitation.		
Disability levels	Describe various conditions that require pulmonary rehabilitation.		
	Discuss levels of pulmonary rehabilitation.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Relate the roles and responsibilites of the patient and patient's family to various levels of pulmonary rehabilitation.		
THERAPEUTIC MODALITIES		**1**	**9**
Adult rehabilitation	Describe O_2, aerosol, and ventilation therapy modalities for adults.		
Pediatric rehabilitation	Describe electronic monitoring and O_2, aerosol, ventilation, and photo therapy modalities for children.		

SPECIFIC TECHNICAL

RES 117 - Pulmonary Rehabilitation

Resources

Bell, C. W., & Blodgett, D. E. (1984). *Home care & rehabilitation in respiratory medicine.* Philadelphia: Lippincott.

Moser, K. M., Archibald, C., Flansen, P., Ellis, B., & Whelan, D. (1983). *Shortness of breath: A guide to better living and breathing.* St. Louis: C. V. Mosby.

O'Ryan, J., & Burns, D. (1984). *Pulmonary rehabilitation: From hospital to home.* Chicago: Year Book Medical.

Petty, T. L. (1982). *Intensive & rehabilitative respiratory care: A practical approach to the management of acute & chronic respiratory failure.* Philadelphia: Lea & Febiger.

SPECIFIC TECHNICAL

RES 120 - Respiratory Therapy Seminar

Course Overview

Course Description

Provides students with an opportunity to prepare for the respiratory therapy technician certification examination. This course is a culminating review that helps students to gain professional credentials. Topics include: test-taking skills and test content preparation.

Competency Areas

Test-Taking Skills
Test Content Preparation

Prerequisite/Corequisite

All didactic and clinical courses required for graduation

Credit Hours

1

Contact Hours Per Week

Lab - 0

Class - 1

SPECIFIC TECHNICAL

RES 120 - Respiratory Therapy Seminar

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
TEST-TAKING SKILLS			
(How to review)	Identify effective review skills.		
	Assimilate effective review skills.		
(How to take tests)	Identify steps in solving objective test items.		
	Sequence steps in solving objective test items.		
	Identify critical cues in objective test items.		
	Adopt effective test item attack strategies.		
	Identify strategies for effective test application, psychology, and concentration.		
TEST CONTENT PREPARATION			
Content review	Analyze the content of a national examination.		
	Identify resources to review in preparation for a national examination.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Internalize the form and content of a self-assessment examination.		
	Synthesize results of a self-assessment examination.		
	Assimilate information from deficiencies that appeared on a self-assessment examination.		

SPECIFIC TECHNICAL

RES 120 - Respiratory Therapy Seminar

Resources

Brainard, C. A., & Wirth, M. (1984). *Respiratory care: National board review.* East Norwalk, CT: Appleton & Lange.

Deshpande, V. M. (1989). *Comprehensive examination review manual for respiratory care practitioners.* East Norwalk, CT: Appleton & Lange.

Edge, R. S., & Forrette, T. L. (1986). *Respiratory care examination review.* East Norwalk, CT: Appleton & Lange.

National Board for Respiratory Care. (1988). *Self-assessment examination.* Shawnee Mission, KS: Author.

Wojciechowski, W. V., & Neff, P. E. (1987). *Comprehensive review of respiratory care.* New York: John Wiley & Sons.

SPECIFIC TECHNICAL

RES 121 - Respiratory Clinical Orientation

Course Overview

Course Description

Prepares respiratory students for intense active participation during future clinical application courses. Emphasis is placed on orientation to hospital facilities, policies, and procedures. Topics include: cardiopulmonary resuscitation (CPR) certification, orientation to the hospital, and observation.

Competency Areas

Cardiopulmonary Resuscitation (CPR) Certification
Orientation to the Hospital
Observation

Prerequisites

Program admission, RES 101

Credit Hours

2

Contact Hours Per Week

OBI - 8

Class - 0

SPECIFIC TECHNICAL

RES 121 - Respiratory Clinical Orientation

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
CARDIOPULMONARY RESUSCITATION (CPR) CERTIFICATION		**0**	**24**
	Obtain BCLS certification.		
ORIENTATION TO THE HOSPITAL		**0**	**16**
	Explain hospital and respiratory therapy department policies.		
	Describe hospital and respiratory therapy department procedures.		
	Utilize hospital and respiratory therapy department infection control measures.		
	Relate hospital and respiratory therapy department personnel to their roles.		
OBSERVATION		**0**	**40**
	Observe patient care involving a variety of respiratory modalities.		

SPECIFIC TECHNICAL

RES 121 - Respiratory Clinical Orientation

Resources

Beckham, R. (1983). *Clinical simulations in respiratory care: Workbook & study guide.* Philadelphia: Lippincott.

DePietro, J. S., & Mustard, M. N. (1987). *Clinical guide for respiratory care practitioners.* East Norwalk, CT: Appleton & Lange.

White, G. C. (1988). *Basic clinical lab competencies for respiratory care: An integrated approach.* Albany, NY: Delmar.

SPECIFIC TECHNICAL

RES 122 - Respiratory Care I

Course Overview

Course Description

Provides the student with hands-on clinical experience in the basics of respiratory therapy. Topics include: clinical patient assessment, humidity/aerosol therapy, oxygen therapy, hyperinflation therapy, and bronchial hygiene.

Competency Areas

Clinical Patient Assessment
Humidity/Aerosol Therapy
Oxygen Therapy
Hyperinflation Therapy
Bronchial Hygiene

Prerequisites/Corequisites

RES 103, RES 107, RES 121

Credit Hours

2

Contact Hours Per Week

OBI - 8

Class - 0

SPECIFIC TECHNICAL

RES 122 - Respiratory Care I

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
CLINICAL PATIENT ASSESSMENT		**0**	**40**
	Review the patents' chart and respiratory care plan.		
	Assist with inspection of the patient.		
	Assist with physical examination of the chest.		
	Assist with arterial blood gas sampling and interpretation of results.		
	Relate radiological and laboratory data to patient condition.		
	Conform to hospital and respiratory therapy department infection control policies.		
	Prepare case presentations.		
HUMIDITY/AEROSOL THERAPY		**0**	**10**
	Assist with aerosol and humidity therapy.		
OXYGEN THERAPY		**0**	**10**
	Assist with oxygen therapy.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
HYPERINFLATION THERAPY		**0**	**10**
	Assist with hyperinflation therapy.		
BRONCHIAL HYGIENE		**0**	**10**
	Assist with bronchial hygiene therapy.		

SPECIFIC TECHNICAL

RES 122 - Respiratory Care I

Resources

Beckham, R. (1983). *Clinical simulations in respiratory care: Workbook & study guide.* Philadelphia: Lippincott.

DePietro, J. S., & Mustard, M. N. (1987). *Clinical guide for respiratory care practitioners.* East Norwalk, CT: Appleton & Lange.

White, G. C. (1988). *Basic clinical lab competencies for respiratory care: An integrated approach.* Albany, NY: Delmar.

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SPECIFIC TECHNICAL

RES 123 - Respiratory Care II

Course Overview

Course Description

Provides in-depth clinical exposure to diagnostic and therapeutic modalities. Topics include: humidity/aerosol therapy, oxygen therapy, hyperinflation therapy, bronchial hygiene, patient assessment and monitoring, and pulmonary diagnostics.

Competency Areas

Humidity/Aerosol Therapy
Oxygen Therapy
Hyperinflation Therapy
Bronchial Hygiene
Patient Assessment and Monitoring
Pulmonary Diagnostics

Prerequisites/Corequisites

RES 106, RES 108, RES 122

Credit Hours

2

Contact Hours Per Week

OBI - 8

Class - 0

SPECIFIC TECHNICAL

RES 123 - Respiratory Care II

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
HUMIDITY/AEROSOL THERAPY		**0**	**15**
	Participate in administration of medications for aerosol and humidity therapy.		
	Participate in providing supplemental humidity for oxygen therapy.		
	Participate in providing high humidity for treatment of the by-passed upper airway.		
	Participate in providing humidity therapy for treatment of dry secretions.		
	Participate in providing large environment humidifiers.		
OXYGEN THERAPY		**0**	**15**
	Participate in equipment changing and oxygen rounds.		
	Participate in the therapeutic use of bulk gas systems and medical gas cylinders.		
	Participate in use of oxygen analyzers.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
	Participate in treatments requiring oxygen administration.		
	Participate in oxygen therapy equipment surveillance and maintenance.		
HYPERINFLATION THERAPY		**0**	**15**
	Participate in treatments requiring incentive spirometry.		
	Participate in treatments requiring positive pressure breathing.		
BRONCHIAL HYGIENE		**0**	**15**
	Participate in treatments requiring postural drainage, percussion and vibration of the chest.		
	Participate in endotracheal lavage and suction therapy.		
PATIENT ASSESSMENT AND MONITORING		**0**	**15**
	Participate in patient assessment and monitoring including inspection of the patient, physical examination of the chest, sampling and interpretation of arterial blood gases, consideration of radiologic and laboratory data, and pulmonary function testing.		
	Conform to hospital and respiratory therapy department infection control policies and procedures.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
PULMONARY DIAGNOSTICS		**0**	**5**
	Participate in utilization of results of patient assessment and monitoring to reach diagnoses.		
	Discuss case studies relating patient data to clinical diagnosis.		

SPECIFIC TECHNICAL

RES 123 - Respiratory Care II

Resources

DiPietro, J. S., & Mustard, M. N. (1987). *Clinical guide for respiratory care practitioners.* East Norwalk, CT: Appleton & Lange.

McFadden, E. R. (1986). *Inhaled aerosol bronchodilators.* Baltimore, MD: Williams & Wilkins.

White, G. C. (1988). *Basic clinical lab competencies for respiratory care: An integrated approach.* Albany, NY: Delmar.

SPECIFIC TECHNICAL

RES 124 - Respiratory Critical Care I

Course Overview

Course Description

Utilizes clinical opportunities to allow students to apply mechanical ventilation to patient care. This clinical experience emphasizes student initiation, maintenance, monitoring, and weaning of the patient requiring mechanical ventilation. Topics include: ventilatory management and basic hemodynamics.

Competency Areas

Ventilatory Management
Basic Hemodynamics

Prerequisites/Corequisites

RES 109, RES 111, RES 114, RES 123

Credit Hours

5

Contact Hours Per Week

OBI - 16

Class - 0

SPECIFIC TECHNICAL

RES 124 - Respiratory Critical Care I

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
VENTILATORY MANAGEMENT		**0**	**120**
	Assist with providing airway care/ bronchial hygiene.		
	Assist with delivery of respiratory modalities such as aerosol treatments and chest physiotherapy for ventilator patients.		
	Assist with ventilator checks, ventilator charges, and ventilator patient circuit changes.		
BASIC HEMODYNAMICS		**0**	**40**
	Assist with evaluation of pulmonary and cardiac functions in the Intensive Care Unit.		

SPECIFIC TECHNICAL

RES 124 - Respiratory Critical Care I

Resources

Bustin, D. (1986). *Hemodynamic monitoring for critical care.* East Norwalk, CT: Appleton-Century-Crofts.

DePietro, J. S., & Mustard, M. N. (1987). *Clinical guide for respiratory care practitioners.* East Norwalk, CT: Appleton & Lange.

Petty, T. L. (1982). *Intensive & rehabilitative respiratory care: A practical approach to the management of acute & chronic respiratory failure.* Philadelphia: Lea & Febiger.

White, G. C. (1988). *Basic clinical lab competencies for respiratory care: An integrated approach.* Albany, NY: Delmar.

SPECIFIC TECHNICAL

RES 125 - Respiratory Critical Care II

Course Overview

Course Description

Allows the student to continue working in the hospital and homecare setting. Emphasis is placed on specialty rotations and ventilator management. Time will be set aside to ensure completion of all required clinical competencies. Topics include: ventilator management, specialty rotations, and completion of all required clinical competencies.

Competency Areas

Ventilator Management
Specialty Rotations
Completion of all Required Clinical Competencies

Prerequisite/Corequisite

All courses required for graduation except RES 120

Credit Hours

10

Contact Hours Per Week

OBI - 32

Class - 0

SPECIFIC TECHNICAL

RES 125 - Respiratory Critical Care II

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
VENTILATOR MANAGEMENT		**0**	**100**
	Participate in providing airway care/ bronchial hygiene.		
	Participate in delivery of respiratory modalities such as aerosol treatments and chest physiotherapy for ventilator patients.		
	Participate in ventilator checks, ventilator changes, and ventilator patient circuit changes.		
SPECIALTY ROTATIONS		**0**	**100**
	Observe/assist with pulmonary function testing.		
	Observe/assist with neonatal/pediatric intensive care.		
	Observe/assist with cardiopulmonary diagnostics, such as stress testing, echocardiography, bronchoscopy, and other procedurs.		

Recommended Outline	After completing this section, the student will:	Hours Class	OBI
COMPLETION OF ALL REQUIRED CLINICAL COMPETENCIES		**0**	**120**
	Develop patient care plans for oxygen therapy, humidity/aerosol therapy, ventilatory management and assessment, chest physical management, and airway management.		
	Implement individualized care for patients that require oxygen therapy, humidity/aerosol therapy, ventilatory management and assessment, chest physical management, and airway management.		

SPECIFIC TECHNICAL

RES 125 - Respiratory Critical Care II

Resources

Bustin, D. (1986). *Hemodynamic monitoring for critical care.* East Norwalk, CT: Appleton-Century-Crofts.

DePietro, J. S., & Mustard, M. N. (1987). *Clinical guide for respiratory care practitioners.* East Norwalk, CT: Appleton & Lange.

Petty, T. L. (1982). *Intensive & rehabilitative respiratory care: A practical approach to the management of acute & chronic respiratory failure.* Philadelphia: Lea & Febiger.

Weber, K. T., & Janicki, J. S. (1989). Cardiopulmonary exercise testing: Phyologic principles & clinical applications. Philadelphia: W. B. Saunders.

White, G. C. (1988). *Basic clinical lab competencies for respiratory care: An integrated approach.* Albany, NY: Delmar.

APPENDIX A

RESPIRATORY THERAPY

EQUIPMENT SUPPLY LIST

Adhesive bandages in first aid kit
Aerosol tee (Brigg's Adaptor)
Aerosol tent device
Air compressor
Air delivery device/system
Air filter
Alarm, low pressure disconnect
Alcohol prep pad
Antibiotic ointment in first aid kit
Applicators, cotton, sterile, in first aid kit
Arm board, disposable, in first aid kit
Arterial blood gas kit
Arterial line with flush solution in pressurized set-up (tubing) [optional]
Arterial puncture training arm
Atomizer jar
Bacterial test indicator [optional]
Basin
Bed, hospital
Beeper/pager/telephone (beeper range: 50 miles)
Betadine prep
Blanket
Blood gas analyzer [optional]
Brush
Calculator
Cannula, nasal
Catheter, nasal
Catheter, suction, sterile
Circuit and connectors, new or sterile (IPPB, breathing)
Collection container, sterile (sputum)
Computer/typewriter
Container for ice [optional]
CPAP device
CPR mannequin
Croupette with canopy
Cuff pressure manometer
Culturing broth in container, sterile [optional]
Culturing plate with growth medium, sterile [optional]

Cup, disposable
Cylinder bank manifold system [optional]
Cylinder cart
Cylinder, CO_2/O_2 (5-95% or 10-90%)
Cylinder, E, medical gas
Cylinder, H, medical gas
Dead-ender caps for stopcocks, sterile
Delivery device (face mask, face tent, trach collar, T-piece)
Demand valve unit with mask
Detergent
Drawsheet
Emesis basin
Endotracheal suction equipment and supplies
Endotracheal tube (all sizes)
Ethylene oxide canister [optional]
Ethylene oxide indicator tape [optional]
Ethylene oxide permeable packaging [optional]
Facial tissue
File cabinets
Flashlight
Flowmeter, air
Flowmeter, peak
Flowmeter, oxygen, with nipple adapter
Funnel, sterile
Gas sterilizer
Gauze pads, 4" x 4", sterile
Gauze pads, 2" x 2" sterile
Gauze, sterile
Gauze pads, unsterile
Gloves, disposable, sterile
Gowns (disposable)
Hemostat
Hose, high pressure, oxygen
Humidifier
Humidifier, heated
Humidifier with reservoir system connected to a one-way valve
Hydrogen peroxide
IMV assembly with reservoir bag
Incentive spirometer
Incubator, infant
Intubation equipment
Intubation mannequin

IPPB circuit
IPPB machine
Laryngoscope and blades, handles, supplies
Lubricant, water soluble
Lukens tube
Lung analog
Mainflow bacterial filter
Maintenance stickers/labels (office supplies)
Manometer (NIF)
MAnuals, manufacturer's for equipment
Manuals, policy and procedure
Mask, high-flow entrainment with humidity adapter
Mask, mouthpiece with nose clip or tracheal tube adaptor
Mask, non-breathing
Mask, partial rebreathing
Medication cup
Monitor, EKG [optional]
Monitor, physiologic pressure with calibrated transducer [optional]
Monitor, transcutaneous oxygen, with membraned electrode cable [optional]
Mouthpiece
Nasal device for CPAP
Nasopharyngeal airway
Nebulizer, Babinton-type
Nebulizer, hand-held (with accessories)
Nebulizer, jet, heated
Nebulizer, jet, large reservoir
Nebulizer, spinning disc
Nebulizer, ultrasonic
Needle, sterile, 14 and 16 gauge
Needle, sterile (5/8-1 1/2, 21 to 25 gauge)
Needle, sterile (Short 25 or 26 gauge)
Normal saline, sterile
Nose clips
O_2 cannula
Obturator
Oropharyngeal airway
Oximeter, pulse, and cable
Oxygen (O_2) analyzer
Oxygen blender
Oxygen controlling device (flowmeter or blender)
Oxygen hood
Oxygen, liquid, portable device

Oxygen, liquid, storage system with reserve unit
Oxygen (O_2) mask
Oxygen reservoir
Oxygen source, 50 psi
Paper toweling
PEEP attachment, external
Pens, assorted colors, ink [optional]
Percussor, mechanical
Pillows
Pipe cleaners
Pressure administration cuff or device
Pressure manometer (D.I.S.S. for oxygen)
Pressure reducing aids
Pressure transducer
Proximal airway temperature indicator
Pulmonary function machine and accessories [optional]
Regulator, American Standard Safety System
Regulator, CO_2/O_2, with flowmeter [optional]
Regulator, Pin Index Safety System
Regulator with Bourdon gauge
Reoxygenation equipment (resuscitator bag with oxygen)
Reservoir bag assembly (pressure relief valve, one-way valve, and reservoir bag)
Respirometer
Resuscitation bag with pressure manometer
Resuscitator bag, manual
Resuscitator, manual, with mask
Saline
Scissors, bandage
Screwdriver
Scrub brush
Sheet
Signs, "No Smoking"
Sink/handwashing facilities
Solution, flush [optional]
Solution, IV, sterile [optional]
Solution, lavage [optional]
Solution, zeroing [optional]
Sphygmomanometer (aneroid, mercury)
Sputum container (cup)
Stabilizer ring/stand for high pressure cylinder
Sterile solution, in isotonic, hypertonic, hypotonic saline and/or distilled water
Sterilization solution

Stethoscope, regular and instructional
Stopcocks, sterile
Stopper, rubber
Stop watch
Stylet for ET tube
Suctioning equipment and supplies
Surgical hat
Surgical mask
Syringe
Syringe, 1cc
Syringe, 3cc
Syringe with 3-way stopcock
Syringe, 5 ml heparinized sampling
Syringe, 10 ml sterile aspirating
Syringe, pre-heparinized
Syringe (Tuberculin-type)
Tape, adhesive, 1/2" and 1"
Tape, cloth, one inch wide
Tape (hypoallergenic)
Tape, twill
Test lung, training
Thermometer
Tongue depressor
Tracheostomy dressing, prepackaged
Tracheostomy tubes, buttons
Transducer domes, disposable, sterile [optional]
Tube adaptor, 15 mm
Tubing, large bore
Tubing, complete pressurized set-up with heparinized flush solution [optional]
Tubing, connecting, with fast flush device, sterile [optional]
Tubing, oxygen connecting
Tubing, suction connecting
Tubing, vacuum connecting
Unit dose diluents
Vacuum regulator and apparatus
Vacuum source (with connecting tubing)
Valve, one-way assembly
Ventilator, infant, mechanical
Ventilator, mechanical, and accessories
Waste container
Water, sterile
Water, sterile distilled

Water, tap
Wrenches for E and H cylinders
Writing/typing supplies
Yankauer tonsillectomy tip

For information concerning equipment, facilities, and supplies required for program accreditation consult the Joint Review Committee for Respiratory Therapy Education, Description of Current Standards for Essential III,B,1: Respiratory care laboratory facilities, and supplies, including equipment list.

The Joint Review Committee
for Respiratory Therapy Education
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