RAD 0290  (Su)  2 hrs. cr.  
Clinical Training III 
Clinical training in special procedures requiring sterile fields and surgical cases. Continued practice and competency in general radiography, surgery and contrast studies. Prerequisites: RAD 110, RAD 210.

RAD 0301  (Su)  2 hrs. cr.  
Image Critique and Quality Management in Radiology 
Theory and practice in the art and science of evaluating the technical quality of images. Students will develop critical-thinking and problem-solving skills to correct positioning and technical errors. Includes an introduction to quality assurance and pathophysiology of the skeletal and respiratory systems. Prerequisites: RAD 132, RAD 170. Four hours of lecture per week.

RAD 0320  (F)  3 hrs. cr.  
Radiographic Positioning III 
An in-depth study of the anatomy and radiographic equipment and positioning used in skulls, facial bones, sinuses, arthrography, long bone measurements and mammography. Part II of this course will include an introduction to CT and an overview of sectional anatomy of the brain, spine, neck, chest and abdomen. One and a half hours of lecture, three hours of lab per week. Prerequisite RAD 241.

RAD 0340  (F)  3 hrs. cr.  
Clinical Training IV 
Continued training in special procedures with increased responsibility in surgical radiography. Continued clinical proficiency development in general radiography, including contrast studies, surgical, portable, facial and skull radiography. Prerequisite: RAD 290 or permission of instructor.

RAD 0350  (F)  3 hrs. cr.  
Patient Care and Radiation Protection in Radiology 
A continuation of basic patient care and radiation protection learned to this point in the program. Course content includes signs, symptoms and appropriate technologist response to common emergencies encountered in radiology. Infection control, chest tubes, enteral tubes and vascular access lines, as well as medication administration, venipuncture and basic ECG will also be covered. Emphasis will be placed on radiation biology and radiation protection of the patient and technologist involved in patient care procedures. Three hours lecture per week. Prerequisites: RAD 101 or permission of instructor.

RAD 0360  (S)  3 hrs. cr.  
Clinical Training V 
Students will rotate through special procedures with increased responsibility and do an introductory rotation through CT scans. In addition, students will continue to incorporate skills and competencies in basic radiologic procedures. Prerequisite: RAD 340.

RAD 0370  (S)  3 hrs. cr.  
Special Topics in Radiology 
Course covers angiography, myelography, digital modalities, bone densitometry and CT with an introductory segment on MRI and ultrasound. Special emphasis on equipment operation, patient care, contrast preparation, procedural steps and pathophysiology. Three hours lecture.

RAD 0380  (Su)  2 hrs. cr.  
Clinical Training VI 
Clinical training in CT and an optional rotation through MRI or other advanced modality. Continued work in proficiency in basic radiographic examinations and competencies. Prerequisite - RAD 360.

RAD 0399  (Su)  3 hrs. cr.  
Advanced Radiology 
A capstone course designed to prepare students for the national certification examination. Course will include advanced concepts and testing over all major aspects covered by the national certification examination as outlined by the American Registry of Radiologic Technologists. Prerequisites - RAD 101, RAD 170, RAD 132, RAD 241. Six hours lecture per week.

Faculty  Pippin - Head, Dunaway, Whiteman

Mission 
The mission of the program is to provide an outstanding educational program that offers students an opportunity to develop knowledge, skill and attitudes essential for safe, effective practice within the scope of respiratory care practitioners.

Goals 
Program goals are:
1. To supply the community with respiratory care practitioners.
2. To prepare program graduates to pass the National Board for Respiratory Care Credentialing Examinations.

A career in the medical field can be a dynamic and rewarding opportunity. The changing nature of the medical profession is creating a demand for multi-skilled health professionals with communication, interpersonal and excellent clinical skills such as the respiratory care practitioner. The Respiratory Therapy Program is designed to prepare students to be employed in the hospital, clinic, sleep laboratory and alternate care settings such as a durable medical equipment company. Respiratory Therapy Practitioners perform a variety of clinical, diagnostic and management functions in these settings.

The Respiratory Therapy Department offers these career tracts:
1. Associate of Science Degree
2. Baccalaureate Degree in Health Sciences. See General Education Requirements and course descriptions on page 49.

The curriculum offers the following options:

- Graduates of the associate degree respiratory care program will be eligible to take the NBRC Certification in Respiratory Therapy to become a Certified Respiratory Therapist (CRT). Successful completion of the CRT exam will allow the graduate to take the written registry and clinical simulation exams to become a Registered Respiratory Therapist (RRT).

- For those students interested in a bachelor degree, there are three options. A Bachelor of Science in Management Technology with an emphasis in General Business, a Bachelor of General Studies or a Bachelor’s in Health Sciences, designed for graduates of the Respiratory Therapy program.

The Associate of Science Degree Program in Respiratory Therapy prepares students for a position as a respiratory care practitioner. The program is provided by Missouri Southern State University and Franklin Technology Center, through a consortium for respiratory care education. The program is accredited by the Commission on Accreditation for Respiratory Therapy,
Respiratory Therapy Students must demonstrate numerous competencies representing all three learning domains: the cognitive, psychomotor and affective domains. Students learn, practice and verify these competencies in a number of settings including the classroom, laboratory and clinic. To achieve the required competencies in the classroom setting, respiratory care students must perceive, assimilate and integrate information from a variety of sources. These sources include oral instruction, printed material, visual media and live demonstrations. Students must participate in classroom discussion, give oral reports and pass written and/or computer-based examinations of various formats. Completion of these tasks requires cognitive skills, such as reading, writing and problem-solving. To be physically capable of the classroom work, students must, with assistance, be able to: hear, see, speak, sit and touch. Respiratory care laboratories provide students with the opportunity to view demonstrations, evaluate and practice with medical devices and perform simulated clinical procedures. In addition to the cognitive skills required in the classroom, students must demonstrate psychomotor skills in manipulation of patients and equipment, as well as general professional behaviors, like team-building and interpersonal communications. To satisfy laboratory and clinic requirements, students must perform all procedures without critical error.

Admission to Missouri Southern or Franklin Technology Center does not automatically grant admission to the respiratory care program. In addition to meeting admission requirements to the University, candidates must apply for admission to the Department of Respiratory Therapy. Applications are accepted during the Spring semester for the Fall class.

Enrollment is competitive; Applicants must submit the necessary information to the department office by the designated deadline to be considered for acceptance. Evidence of computer literacy and satisfactory completion of the following prerequisites with a ‘C’ or better must be presented: MATH 030 Intermediate Algebra or higher and BIO 121 Human Anatomy and Physiology I. Department Recommendation: High school or college course work in Physical Science and Chemistry. Interested individuals are encouraged to contact the Program Director of Respiratory Therapy for more specific information regarding admissions criteria.

In addition to established fees for all university students, other costs are incurred by respiratory care students such as: uniforms, books, self-assessment examinations, graduation pins, AARC student membership dues, liability insurance and various expenses for transportation to off campus clinical sites and professional meetings.

Graduate outcomes
Graduates of the program will:

- **Cognitive** - Demonstrate the ability to comprehend, apply and evaluate clinical information relevant to their role as a respiratory care practitioner.
- **Psychomotor** - Demonstrate the technical proficiency in all skills necessary to fulfill the role as a respiratory care practitioner.
- **Affective** - Demonstrate personal behavior consistent with professional and employer expectations for the respiratory care practitioner.

## Admission Criteria

(Associate of Science in Respiratory Therapy)

Application should be made directly to the Respiratory Therapy Department Office on the Missouri Southern State University campus (special admissions procedures are required for admittance into this program in addition to admittance to MSSU).

1. Continuous enrollment, readmission or admission to Missouri Southern and Franklin Technology Center as a transfer student.
2. Completion of an approved college-level math and Anatomy & Physiology I course.
3. Provide documentation of computer literacy.
4. Minimum percentile score on the Health Occupations Basic Entrance Test administered by the Department.
5. Submit to background check and drug screen.

Admission to the program is competitive. Applicants who meet all admission criteria, have completed math and biology courses and/or have healthcare experience will be given preference in admission.

## Associate of Science in Respiratory Therapy

**Major Code RE00**

**General Education Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 030 or higher*</td>
<td>3</td>
</tr>
<tr>
<td>RESP 101 Respiratory Therapy Foundations</td>
<td>3</td>
</tr>
<tr>
<td>RESP 102 Cardiopulmonary Sciences</td>
<td>3</td>
</tr>
<tr>
<td>RESP 105 Cardiopulmonary Anatomy &amp; Physiology</td>
<td>3</td>
</tr>
<tr>
<td>RESP 107 Respiratory Therapy Procedures</td>
<td>3</td>
</tr>
<tr>
<td>RESP 108 Respiratory Procedures Lab</td>
<td>3</td>
</tr>
<tr>
<td>RESP 120 Cardiopulmonary Pathology</td>
<td>3</td>
</tr>
<tr>
<td>RESP 125 Respiratory Therapy Clinical I</td>
<td>3</td>
</tr>
<tr>
<td>RESP 129 Cardiopulmonary Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>RESP 222 Introduction to Mechanical Ventilation</td>
<td>4</td>
</tr>
<tr>
<td>RESP 226 Cardiopulmonary Diagnostic</td>
<td>3</td>
</tr>
<tr>
<td>RESP 239 Respiratory Therapy Clinical II</td>
<td>5</td>
</tr>
<tr>
<td>RESP 307 Cardiopulmonary Assessment</td>
<td>6</td>
</tr>
<tr>
<td>RESP 311 Neonatal/Pediatric Care</td>
<td>3</td>
</tr>
<tr>
<td>RESP 312 Advanced Mechanical Ventilation</td>
<td>3</td>
</tr>
<tr>
<td>RESP 313 Alternate Site Respiratory Therapy (WI)</td>
<td>3</td>
</tr>
<tr>
<td>RESP 340 Advanced Level Clinical Practice</td>
<td>5</td>
</tr>
<tr>
<td>RESP 341 Research Issues, Methods</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>64-85</strong></td>
</tr>
</tbody>
</table>

*Prerequisites BIO 121 & MATH 030 or higher meet AS degree requirement.

Associate of Science degree students must meet the Missouri Constitution Requirement by completing PSC 120 or the Missouri Constitution Test.

Students must pass the National Board for Respiratory Therapy Self Assessment Exam (SAE) for both CRT and RRT prior to graduation from Missouri Southern State University.
**Course Descriptions**

**RESP 0101  (F)  3 hrs. cr.**
Respiratory Therapy Foundations

Entry level information is presented regarding respiratory care history from its conception to its current goals and standing. Topics covered include medical terminology, hospital and respiratory care department structure and management, psychosocial aspects of patient care and medical ethics. A clinical session, allows the student an orientation rotation at the program’s clinical sites. Prerequisite: Admission to the respiratory care program.

**RESP 0102  (F)  3 hrs. cr.**
Cardiopulmonary Sciences

Focuses on the sciences used in the practice of respiratory care. Emphasis will be placed upon physics, chemistry and microbiology and infection control as related to the cardiopulmonary sciences. Prerequisite: Admission to the respiratory care program and completion of a college-level math course.

**RESP 0105  (S)  3 hrs. cr.**
Cardiopulmonary Anatomy and Physiology

An in-depth presentation of the cardiopulmonary system, its abnormalities and corrective techniques as related to respiratory care. Included are the concepts of the cardiovascular system, ventilation, diffusion of pulmonary gases, hemodynamic measurements, ventilation perfusion relationships, oxygen and carbon dioxide transport, acid base balance and arterial blood gas analysis. Prerequisite: Admission to the respiratory care program, college level math course and completion of BIO 121.

**RESP 0107  (F)  3 hrs. cr.**
Respiratory Therapy Procedures

Theory and practice of basic respiratory care procedures as outlined in the National Board for Respiratory Therapy (NBRC) CRT examination content outline. Including cardiopulmonary assessment, medical gas administration, oxygen therapy, equipment maintenance, chest physiotherapy, chest expansion therapy, airway management, bedside pulmonary function testing, arterial puncture and administering medicated aerosol therapy. Prerequisites: Admission to the respiratory care program and concurrent enrollment or completion of the Respiratory Therapy Procedures Laboratory course.

**RESP 0108  (F)  3 hrs. cr.**
Respiratory Therapy Procedures Laboratory

Students practice entry level respiratory care procedures, using state-of-the-art equipment, in the clinical laboratory under simulated patient situations. The student will address the three difficulty levels of learning, in the laboratory environment (Recall, Application and Analysis). Prerequisites: Admission to the respiratory care program and concurrent enrollment or completion of RESP 107.

**RESP 0120  (S)  3 hrs. cr.**
Cardiopulmonary Pathology

Study of concepts and theory of selected cardiopulmonary diseases, to include: definition, clinical manifestations, etiology, pathologic, radiologic and laboratory findings; prevention, prognosis and treatment. Prerequisite: Admission to the respiratory care program and completion of BIO 121.

**RESP 0125  (S)  3 hrs. cr.**
Clinical Respiratory Therapy Experience I

Clinical instruction supplemented by clinical SOAP assessments that allow the student to apply the classroom and laboratory respiratory care competencies mastered in specific respiratory care courses. Prerequisites: RESP 107 & RESP 108.

**RESP 0129  (S)  3 hrs. cr.**
Cardiopulmonary Pharmacology

Comprehensive overview of the general principles of pharmacology. Focuses on the drugs and drug groups that are either administered by respiratory care personnel or those that play a role in the care of cardiopulmonary patients. Prerequisite: BIO 121 and admission to the respiratory care program.

**RESP 0222  (F)  4 hrs. cr.**
Introduction to Mechanical Ventilation (Life Support Technology)

Emphasis on the technical components of mechanical ventilators, their classification, principles of operation, attachments and the flow/pressure/volume curves generated by various ventilators, as well as compliance and resistance. An introduction to the management of patients receiving mechanical ventilation will be presented in a laboratory format. Prerequisite: Admission to the respiratory care program.

**RESP 0226  (F)  3 hrs. cr.**
Cardiopulmonary Diagnostics

Theory, application and equipment for diagnosing respiratory pathologies through the diagnostic concepts used in respiratory care. Include techniques utilized for measurement of lung gas volumes, capacities, flows and cardiopulmonary status during exercise testing. Basic EKG interpretation will be presented. A secured SAE will be administered during the course. Prerequisite: Admission to the respiratory care program.

**RESP 0229  (F)  5 hrs. cr.**
Clinical and Laboratory Experience II

Clinical instruction supplemented by clinical SOAP assessments that allow the student to apply the knowledge and respiratory care skills mastered in the Respiratory Therapy courses: Cardiopulmonary Diagnostics, Introduction to Mechanical Ventilation and Neonatal and Pediatric Respiratory care in the laboratory and clinical setting. The course will emphasize ventilator care, diagnostic procedures and alternate site care (home care). Prerequisite: RESP 125.

**RESP 0307  (S)  6 hrs. cr.**
Cardiopulmonary Assessment

A systematic approach to advanced cardiopulmonary patient assessment. Emphasis is on evaluation of the respiratory care plan based upon laboratory data, electrocardiogram interpretation, fluid and electrolyte balance, acid base balance and oxygen transport, pulmonary function testing, exercise testing, interpretation of chest x-rays, bronchoscopy and hemodynamic monitoring. Prerequisite: Admission to the respiratory care program. In addition the course addresses ACLS (Advanced Cardiac Life Support). Course will consist of four (4) lecture hours and four (4) lab clinical hours each week.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESP 0311</td>
<td>3 hrs.</td>
<td>Neonatal and Pediatric Respiratory Therapy</td>
<td>Respiratory care of the neonatal and pediatric population beginning with fetal development and continuing through assessments of infants including, gestational age, APGAR scoring and Silverman scoring. Various heart/lung deficiencies will also be discussed as well as treatment modalities. Prerequisite: Admission to the respiratory care program.</td>
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<td>Responds</td>
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<tr>
<td>RESP 0313</td>
<td>3 hrs.</td>
<td>Alternate Site Respiratory Therapy (Writing Intensive)</td>
<td>Theoretical aspects of providing respiratory care at alternate sites. Includes components of home respiratory care, extended care units, long term care facilities, ventilator rehabilitation centers, physician offices, land/air transport, outpatient diagnostic clinics. Introduces the fundamentals of teaching and learning theories. Prerequisite: Admission to the respiratory care program.</td>
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<tr>
<td>RESP 0340</td>
<td>5 hrs.</td>
<td>Advanced Level Respiratory Therapy Clinical Experience</td>
<td>Progressive process of developing cognitive levels at the recall, application and analysis levels as a respiratory care practitioner. Correlates directly with the Advanced Mechanical Ventilation (Advanced Life Support) course, Cardiopulmonary Assessment, Neonate/Pediatric and the Alternate Site (Management/Pulmonary Rehabilitation/Home Care) courses, to provide the student a clinical environment to demonstrate these learned advanced-level respiratory care competencies. Prerequisite: Admission to the respiratory care program and concurrent enrollment or completion of theory coursework.</td>
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<tr>
<td>RESP 0341</td>
<td>1 hr.</td>
<td>Research Issues, Methods and Problems in Respiratory Therapy</td>
<td>Directed research and discussion in selected areas of respiratory care for advanced-level respiratory therapist. Course work includes independent literature search under the supervision of a respiratory care instructor that utilizes the student’s program acquired respiratory care critical thinking, writing and oral presentation skills. Research scope, depth and area of concentration to be approved by the program director. A secure WRRT exam will be administered during this course.</td>
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</tbody>
</table>