



Jordan University of Science and Technology
Faculty of Applied Medical Sciences
Respiratory Therapy Department

RTH313 Respiratory Physics - JNQF Level: 7

First Semester 2023-2024

Course Catalog

2 Credit Hours. This course provides a core knowledge of essential physical terminologies and application of gas laws from respiratory care perspective. Also, how gases moves in/out lungs were mentioned.

Teaching Method: Blended

Text Book

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|--------------------------|---|
| Title | EGAN'S Fundamentals of Respiratory Care |
| Author(s) | Kacmarek R. M., Stoller J. K., Heuer A. J. |
| Edition | 12th Edition |
| Short Name | TextBook |
| Other Information | 2021, https://www.elsevier.com/books/egans-fundamentals-of-respiratory-care/kacmarek/978-0-323-51112-4 |

Course References

| Short name | Book name | Author(s) | Edition | Other Information |
|-------------------------|---|------------------------------------|--------------|---|
| Ref # 1 | MOSBY's Respiratory Care Equipment, 11th Ed. (2022). | Cairo, J. M. | 11th Edition | 2022,_978-0-323-71221-7 |
| Recommended for reading | MOSBY's Respiratory Care Equipment | Cairo, J.M., and Susan P. Pilbeam. | 7th Edition | 2003 ISBN-10: 0323022154, ISBN-13: 978-0323022156 |

Instructor

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| Name | Mr. Ibrahim Mahmoud |
| Office Location | Pending |
| Office Hours | Sun : 12:30 - 14:30 Mon : 14:30 - 15:30 Wed : 12:30 - 14:30 Thu : 10:30 - 11:30 |

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| Email | immahmoud@just.edu.jo |
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| Class Schedule & Room |
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Section 1:
Lecture Time: Sun : 11:30 - 12:30
Room: SF05

| Prerequisites |
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| Line Number | Course Name | Prerequisite Type |
|-------------|---------------------------|----------------------|
| 821035 | HSS103PHY General Physics | Prerequisite / Study |
| 921031 | PHY103 General Physics | Prerequisite / Study |

| Tentative List of Topics Covered |
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| Weeks | Topic | References |
|----------------------|---|---|
| Week 1 | Week of Withdrawing and adding courses/Orientation | |
| Week 2 | Properties and states of matter. | C6 From TextBook , C1 From Ref # 1 |
| Week 3 | Change of state : 1. Liquid-Solid Phase Changes (Melting and Freezing) ; 2. Properties of Liquids | C6 From TextBook , C1 From Ref # 1 |
| Week 4 | Change of state : 1. Liquid-Vapor Phase Changes; 2. Properties of Gases | C6 From TextBook , C1 From Ref # 1 |
| Week 5 | Gas Behavior Under Changing Conditions: 1. Gas laws; 2. Effect of Water Vapor | C6 From TextBook , C1 From Ref # 1 |
| Week 6 | First Exam | |
| Weeks 7, 8 | Fluid Dynamics: Pressures in Flowing Fluids; Patterns of Flow | C6 From TextBook , C1 From Ref # 1 |
| Weeks 9, 10 | Fluid Dynamics: Flow, Velocity, and Cross-Sectional Area; Bernoulli Principle | C6 From TextBook , C1 From Ref # 1 |
| Week 11 | 2nd Exam | |
| Week 12 | Principles of Electricity | C6 From TextBook |
| Weeks 13, 14, 15, 16 | Ventilation | C11 From TextBook |

| Mapping of Course Outcomes to Program Outcomes and NQF Outcomes | Course Outcome Weight (Out of 100%) | Assessment method |
|--|-------------------------------------|-------------------------|
| Respiratory therapist students will be able to describe the properties of gases after completing the lesson [1PLO 1] [1L7K1] | 10% | First Exam, Final Exam |
| Describe the mechanisms responsible for the change of state to a vapor and the energy required to make the transition [1PLO 1] [1L7K1] | 10% | First Exam, Final Exam |
| Explain the importance of gas laws in gas exchange in terms of temperature, pressure and gas volume change. [1PLO 1] [1L7K1] | 20% | First Exam, Final Exam |
| Describe the importance of humidity application [1PLO 1] [1L7K1] | 10% | First Exam, Final Exam |
| Explain the effect of gas flow type inside airways [1PLO 1] [1L7K1] | 10% | Second Exam, Final Exam |
| Describe three strategies that can be used to protect patients from electrical hazards. [1PLO 1] [1L7K1] | 10% | Final Exam |
| Describe the pressure gradients responsible for gas flow, diffusion and lung inflation [1PLO 1] [1L7K1] | 30% | Final Exam |

| Relationship to Program Student Outcomes (Out of 100%) | | | | | | |
|--|-------|-------|-------|-------|-------|-------|
| PLO 1 | PLO 2 | PLO 3 | PLO 4 | PLO 5 | PLO 6 | PLO 7 |
| 100 | | | | | | |

| Relationship to NQF Outcomes (Out of 100%) | |
|--|------|
| | L7K1 |
| | 100 |

| Evaluation | |
|-----------------|--------|
| Assessment Tool | Weight |
| First Exam | 30% |
| Second Exam | 30% |
| Final Exam | 40% |

| Policy |
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| Teaching & Learning Methods | <p>1. Objectives of the course will be achieved through class presentations, videos, and case studies.</p> <p>2. You are responsible for all material covered in the class.</p> <p>3. Please communicate any concerns or issues as soon as possible either in class, or by E-mail.</p> <p>Teaching duration:</p> <ul style="list-style-type: none"> - Duration: 16 weeks <p>Examination:</p> <ul style="list-style-type: none"> - Online exams will be conducted at JUST campus, multiple choice questions will be used in the online exams, while make-up exams will be as "written questions", after students get the permission via the policy of the university for the make-up exams. |
| Attendance policy: | Attendance is mandatory; students are allowed 20 % absence with/without excuses |
| Contact with the Instructor | <p>Via office hours, email, e-learning and office phone.</p> <p>** CONTACT VIA PERSONAL CELL PHONE IS NOT WELCOMED</p> <p>** SMOKING AND CELL PHONES ARE NOT PERMITTED</p> |

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