

 **PHYSICS 132**

**Course Outline Second Semester 23/24**

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| ***Coordinator*:** | *Dr. Aziz Shawabkeh* |
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| ***Textbook***: | Halliday, Resnick and Walker. ***Principles of Physics*,** 10th edition, international student version.  |

**Course Description**:

Physics 132 is the second course of introductory theoretical physics courses with calculus sequence. This course is all about the physics laws that govern electric and magnetic phenomena. It covers the following topics: Electric Charge, fields and potential, Gauss’s Law, Capacitance, Current and Resistance, Circuits, Magnetic Fields, and Magnetic Fields Due to Currents, Induction and Inductance. Electric oscillations and Maxwell equations.

**How to understand the material and score high in the course:**

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Physics is only learned through practice, you have to study the material from the textbook, work the assigned problems on your own. You can ask your instructor to give you hints to solve the problem. These assigned problems are the minimum problems that students need to solve to do well in the course. Please try to attend all lectures and discussion sessions. You can’t learn physics without attending these sessions.

The class will meet 3 times a week, two lectures and one discussion. In the lecture, the teacher may not be interrupted by questions. However, the lecturer will sometimes allow for some questions at special times. The opposite is true during discussions. Students should come prepared with questions and comments

**Course Evaluation**:

Your final grade will be based on the following evaluations:

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| Two hour Exams  | 40% |
| Quizzes | 20% |
| Final Exam | 40% |

**Course Syllabus**:

 The following table contains the syllabus of the course. The table lists the numbers for selected discussion problems. Students are encouraged to try additional problems on their own.

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| ***Chapter*** | ***# of Meetings*** | ***Discussion Problems*** | ***Additional Problems***  |
| **21: Coulomb’s Law.**  | **1** | 3, 6,13 ,31,35 ,37 | 5, 18, 22, 30 |
| **22: Electric Fields.** | **3**  | 1,4,11,12,33,38,41,55 | 14,19,23,40,49,60 |
| **23: Gauss’s Law**  | **2** | 1,6,17,18,23,39 | 3,13,21,25,29,43 |
| **24: Electric Potential**  | **2** | 3,7,9, 17,25,33,46,47 | 1,2,10,12,13,31,32 |
| **25: Capacitance**  | **2** | 2,10,17,18,37,39,53,60 | 6,11,12,22,28,31 |
| **First Hour Exam** |  |
| **26: Current and Resistance**  | **2** | 2,3,11,15,25,43,45,53 | 13,14,17,20,32 |
| **27: Circuits**  | **2** | 3,8,15,18,30,62,69 | 2,20,21,59,61,64 |
| **28: Magnetic Fields**. | **3** | 4,10,18,27,47,49,54,63 | 1,5,20,21,41,42,43 |
| **29: Magnetic Fields Due Currents** | **2** | 5,6,21,25,34,35,53,58 | 8,23,28,45,57 |
| **Second Hour Exam** |  |
| **30: Induction & Inductance** | **2** | 1,10,16,18,23,31,43,77 | 12,15,24,27,28,41 |
| **31: E&M Oscillations**  | **2** | 1,24,27,37,53,56 |  |
| **32: Maxwell’s Equations** | **2** | 1,5,14,42,49 |  |

### ***Good Luck***