IOWA WESTERN COMMUNITY COLLEGE

**Term: Summer 2014**

**I. Faculty Information:**

Instructor: **Mr. Douglas Corteville** Phone: 402-981-7376

e-mail Address: [dcorteville@iwcc.edu](mailto:dcorteville@iwcc.edu)

Office: Lewis Hall L133

Office Hours: I am in Connecticut Use email and include your section number

**II. Course Information:**

Course Prefix/ No. Course Name Credits Lecture Lab

**PHY 220 Classical Physics II –Calculus Level 4 4 0**

Course Description:

Classical Physics II-Calculus Level is the second part of a two-semester continuing course for students majoring in science, mathematics or engineering. Thermal expansion, wave motion, electricity, magnetism, AC and DC circuits, light, lenses, and special relativity are covered. (4/0)

Prerequisites:

Prerequisite: Calculus II

*Co-requisite: None*

Course Meeting Times Course Location

*This is a web class, see you on the web*

Required Textbooks

Physics For Scientists and Engineers 4th edition, by Giancoli

ISBN13: 978-0-13-227559-0

Suggested Supplemental Textbooks, References

None

Materials and Supplies to be Furnished by Student

1. TI-86 series Graphing Calculator or TI-36 calculator, or better.
2. Jump drive.

Course Objectives

Upon completion of this course students will be able to:

1. Solve physical problems and draw mathematically based conclusions through clear and logical reasoning from course assignments, laboratory exercises
2. use analytical techniques appropriate to the study of physics
3. symbolically represent vector quantities.
4. select and use appropriate equipment for measuring and investigating.
5. use appropriate units and apply dimensional analysis.
6. manipulate equations and solve for variables.

1. Solve problems using in Thermodynamics.
2. use calculus and geometric concepts to describe an object’s reaction to heat.
3. describe and calculate appropriate quantities for a gas using the gas laws.
4. describe and calculate appropriate quantities for an idea gas.
5. explain how thermodynamics relates to Air conditioning and heating.
6. describe the relationships in the first and second law of thermodynamics.

1. Solve problems using Calculus in electricity and magnetism
2. use algebraic and geometric concepts to the flow of charge, electric potential, and electric fields.
3. describe and calculate appropriate quantities of voltage, amperes, resistance, and charge.
4. describe and calculate appropriate quantities of Magnetic fields electromagnetic Induction and electromagnet waves .
5. explain how AC and DC motors and generators function.
6. describe the relationships between resistance, capacitance, and inductance.

1. Solve problem in Optics
2. use algebraic and geometric concepts to examine the nature of light.
3. describe and calculate appropriate quantities form Snell’s law and thin lens magnification.
4. describe and calculate appropriate quantities of Wave length speed and frequency of light .
5. explain how optical instruments function.
6. describe the relationships between the human eye and the classes we wear.

1. Solve problems in Special Theory of Relativity
2. use algebraic and geometric concepts to solve problems in time dilation.
3. describe and calculate appropriate quantities of length time and mass at speeds close the speed of light.
4. describe and calculate appropriate quantities for the relativistic addition of velocities.
5. explain the impact of special relativity on western culture.

Honor Code – Academic Honesty

Upon enrolling at Iowa Western Community College, each student assumes an obligation to conduct her/his academic affairs in a manner compatible with the standards of academic honesty established by the College and its faculty. If this obligation is neglected or ignored by the student, disciplinary action will be taken.

Course Practices:

The syllabus serves as a contract between the faculty and the students.

1. Attendance Requirements

Students are responsible **for doing the work assigned on the web site.**

1. Standards for written work

All student work will be submitted in the chapter dropbox provided

1. Late papers and assignments

Late work will be accepted, but the instructor reserves the right to reduce the amount of credit awarded if circumstances warrant.

1. Missed exams

If a student misses a scheduled examination a retake exam will be given if asked, retake grades are not curved

1. Extra Credit

None

1. Participation

Participation is not be used to calculated your final grade.

1. Classroom Management and Behavior

**NA this is a web class.**

1. If you are not having fun in this class email your the instructor to find out why.

Grading

1. Chapter Exams/Tests: There will be a total of three Chapter Tests during the semester. The tests will be primarily problems. Exams will be open book with calculators allowed.
2. The final exam will be cumulative.

Grading

Homework, quizzes, discussions 40% A 90%-100%

Chapter tests: 30% B 80%-90%

Final Exam: 30% C 70%-79%

100% D 60%-69%

F 0-59%

Important Dates

**June 2nd Summer classes begin**

**July 25th Summer Semester ends**

Problem Resolution

If you have a conflict with me, concerns about my teaching and/or the course material, please discuss this first with me. If we cannot resolve the difficulty, contact Kim Carter, Dean for Math Engineering and Industrial Technologies, Lewis Hall Room 103A, phone number **712-**325-3329

Notice of Class Cancellation

1. N/A web class

Diversity Statement

Iowa Western Community College values diversity and supports learning experiences that promote intellectual growth and human enrichment.

American with Disabilities Act Statement

If you are an individual with a disability who requires an accommodation to fully participate in academic programs or campus activities, please contact the Coordinator of Disability Services as soon as possible at 712-325-3390 or the Success Center, Clark Hall (CH214). This will allow time to plan your accommodations.

FERPA

Student rights concerning access to educational records are spelled out in Federal Public Law 98-380 as amended by Public Law 93-568 and in regulations published by the Department of Education. Student records and class schedules will be released only to students showing proper identification.

**Course Number and Name: PHY 220 Physics II –Calculus Level**

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| --- | --- | --- |
| Week | **Class work** | **Home work** |
| **1**  **2 June 14** | **Chapter 17**    **Chapter 18** | Page 471 problems 11, 21, 23, 29, 37, 45, 49, 55    Page 492 problems 9, 15, 17, 21, 25, 31, 39, 49, 55 |
| **2**  **9 June 14** | **Chapter 19**    **Chapter 20** | Page 522 problems 5, 11, 17, 25, 31, 35, 39, 47, 55, 59, 65    Page 552 Problems 5, 11, 19, 27, 31, 37, 45, 53, 65 |
| **11 June 14** | **Test Chapters 17-20** |  |
| **3**  **16 June 14** | **Chapter 21**    **Chapter 22**    **Chapter 23** | Page 585 Problems 13, 19, 29, 35, 43, 49, 57, 63    Page 601 Problems 3, 7, 17, 29, 43    Page 623 Problems 11, 19, 23, 27, 31, 37, 41, 45, 51, 57 |
| **4**  **23 June 14** | **Chapter 24**    **Chapter 25**    **Chapter 26** | Page 644 Problems 5, 15, 19, 25, 31, 35, 45, 51, 57, 63    Page 672 Problems 5, 15, 21, 27, 35, 43, 47, 55, 59    Page 699 Problems 3, 17, 25, 31, 39, 51 |
| **25 June 14** | **Test Chapters 21-26** |  |
| **5**  **30 Jun 14** | **Chapter 27**    **Chapter 28**    **Chapter 29** | Page 727 Problems 5, 11, 17, 31, 37, 45    Page 751 Problems 7, 13, 19, 23, 29, 35, 41, 43    Page 778 Problems 5, 11, 19, 29, 33, 39, 47, 51, 55 |
| **6**  **7 July 14** | **Chapter 30**    **Chapter 31**  **Test chapter 27/31** | Page 805 Problems 3, 9, 17, 21, 29, 35, 35, 43, 51, 59, 67    Page 833 Problems 5. 11, 19, 25, 35, 41 |
| **9 July 14** | **Test chapter 27-31** |  |
| **7**  **14 July 14** | **Chapter 32**    **Chapter 33**    **Chapter 34** | Page 860 Problems 5, 15, 23, 29, 37, 41, 45, 49, 55, 61    Page 894 Problems 5, 15, 21, 27, 37, 45, 55, 65   Page 916 Problems 1, 5, 15, 25, 35 |
| **8**  **21 July 14** | **Chapter 35**    **Chapter 36** | Page 946 Problems 3, 11, 25, 35, 43, 51, 59   Page 982 Problems 7, 17, 19, 29, 37, 43, 55, 65 |
| **23 July 14** | **Final Exam** |  |
| **25 July 14** | **Class ends** |  |