**Course Prefix, Number, and Title: PHYS 152, Introductory Physics**

**Section Number(s): 1001**

**Department: Science**

**Instructor: Milinda Wasala**

**Academic Year: 2019/2020**

**Semester: Spring 20 (8 Weeks)**

**Is this a GenEd class? Yes**

**Complete and submit your assessment report electronically to your department chair. As needed, please attach supporting documents and/or a narrative description of the assessment activities. You may use as many or as few outcomes as necessary.**

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| **Class/Course Outcomes** | **Assessment Measures** | **Assessment Results** | **Outcome Results Analysis** |
| In the boxes below, summarize the outcomes assessed in your class or course during the last year*.* If this is a GenEd class, include the appropriate GenEd objectives. | In the boxes below, summarize the methods used to assess course outcomes during the last year. Include the criterion you’ll use to judge whether or not students have achieved the expected outcome. | In the boxes below, summarize the results of your assessment activities during the last year. Include your judgement as to whether or not the criterion for student achievement has been met. | In the boxes below, please reflect on this outcome’s results and summarize how you plan to use the results to improve student learning. |
| Outcome #1:  Be able to discuss Newton’s First Law of motion.  Outcome #2:  Distinguish between scalar and vector quantities and give several examples of each. | Assessment Measure:  Ch 2-3 Homework  Quiz 1  Mid-term exam  Final Exam  Criterion for achievement:  60% of students earned 80% or above in homework  80% of students earned 80% or above in Quiz 1  60% of students earned 60% or above in midterm exam  60% of students earned 60% or above in Final Exam | Results:  85% of students had an aggregate score of 80% or more on Ch 2-3 homework.  100% of students had an aggregate score of 80% or more on quiz 1.  71% of students had an aggregate score of 60% or more on midterm exam.  71% of students had an aggregate score of 60% or more on Final Exam.  Criterion Met: Yes | 1. Results Analysis:  First few chapters are mathematically more intensive.  2. Action Plan:  Discuss more problems. |
| Outcome #3:  Utilize the gravitational acceleration constant “g” in a free fall problem  Outcome #4:  Discuss the significance of Newton's second law of motion.  Outcome #5:  Use the third law of motion to relate action and reaction forces.  Outcome #6:  Distinguish between mass and weight and the weight of an object of given mass. | Assessment Measure:  Ch 4-5 Homework  Quiz 2  Lab 1  Mid-term exam  Final Exam  Criterion for achievement:  60% of students earned 80% or above in homework  80% of students earned 80% or above in Quiz 1  100% of students earned 90% or above in labs  60% of students earned 60% or above in midterm exam  60% of students earned 60% or above in Final Exam | Results:  71% of students had an aggregate score of 80% or more on Ch 2-3 homework.  71% of students had an aggregate score of 80% or more on quiz 2.  All of students earned 90% or above on lab1.  71% of students had an aggregate score of 60% or more on midterm exam.  71% of students had an aggregate score of 60% or more on Final Exam.  Criterion Met: Yes | 1. Results Analysis:  This part of the course is mathematically more intensive. Quiz 2 results were close to the expected level.  2. Action Plan:  Discuss more problems. |
| Outcome #7:  Illustrate linear momentum and discuss its significance.  Outcome #8:  Distinguish between kinetic energy and potential energy.  Outcome #9:  State what is meant by angular momentum. | Assessment Measure:  Ch 6-7 Homework  Quiz 3  Mid-term exam  Final Exam  Criterion for achievement:  60% of students earned 80% or above in homework  80% of students earned 70% or above in Quiz 3  60% of students earned 60% or above in midterm exam  60% of students earned 60% or above in Final Exam | Results:  All of students had an aggregate score of 80% or more on Ch 6-7 homework.  58% of students had an aggregate score of 80% or more on quiz 3.  71% of students had an aggregate score of 60% or more on midterm exam.  71% of students had an aggregate score of 60% or more on Final Exam.  Criterion Met: No | 1. Results Analysis:  This part of the course is mathematically more intensive. Quiz 3 results were lower than expected. When comes to timed quizzes student make arithmetic errors more often.  2. Action Plan:  Discuss more problems |
| Outcome #10:  State Newton's law of gravity and describe how gravitational forces vary with distance.  Outcome #11:  Distinguish between atomic number and mass number. | Assessment Measure:  Ch 9,11 Homework  Mid-term exam  Final Exam  Criterion for achievement:  60% of students earned 80% or above in homework  60% of students earned 60% or above in midterm exam  60% of students earned 60% or above in Final Exam | Results:  85% of students had an aggregate score of 80% or more on Ch 9,11 homework.  71% of students had an aggregate score of 60% or more on midterm exam.  71% of students had an aggregate score of 60% or more on Final Exam.  Criterion Met: Yes | 1. Results Analysis:  2. Action Plan:  Keep this part of the course same. |
| Outcome #12:  Distinguish between temperature and heat.  Outcome #13:  Describe and calculate density.  Outcome #14:  Compare heat engines and refrigerators.  Outcome #15:  Distinguish between transverse and longitudinal waves.  Outcome #16:  Distinguish between amplitude and frequency modulation. | Assessment Measure:  Ch 15,19 Homework  Quiz 4  Lab 2  Final Exam  Criterion for achievement:  60% of students earned 80% or above in homework  80% of students earned 70% or above in Quiz 1  100% of students earned 90% or above in labs  60% of students earned 60% or above in Final Exam | Results:  71% of students had an aggregate score of 80% or more on Ch 15,19 homework.  All of students had an aggregate score of 70% or more on quiz 4.  All of students earned 90% or above on lab2.  71% of students had an aggregate score of 60% or more on Final Exam.  Criterion Met: Yes | 1. Results Analysis:  2. Action Plan:  Keep this part of the course same. |
| Outcome #17:  State Coulomb's law for electric force and compare it with Newton's law of gravity. | Assessment Measure:  Ch 22,23 Homework  Quiz 5  Final Exam  Criterion for achievement:  60% of students earned 80% or above in homework  80% of students earned 70% or above in Quiz 1  60% of students earned 60% or above in Final Exam | Results:  85% of students had an aggregate score of 80% or more on Ch 22,23 homework.  85% of students had an aggregate score of 70% or more on quiz 5.  71% of students had an aggregate score of 60% or more on Final Exam.  Criterion Met: Yes | 1. Results Analysis:  2. Action Plan:  Keep this part of the course same. |
| Outcome #18:  Describe magnetic fields and magnetic domains.  Outcome #19:  Discuss the concept radioactive half life and the danger of radioactivity. | Assessment Measure:  Ch 24,26 Homework  Lab 3  Final Exam  Criterion for achievement:  60% of students earned 80% or above in homework  100% of students earned 90% or above in labs  60% of students earned 60% or above in Final Exam | Results:  All the students had an aggregate score of 80% or more on Ch 24,26 homework.  All of students earned 90% or above on lab3.  71% of students had an aggregate score of 60% or more on Final Exam.  Criterion Met: Yes | 1. Results Analysis:  2. Action Plan:  Keep this part of the course same. |
| Outcome #20:  **GEN ED, Scientific Reasoning-**  Demonstrate an understanding of the scientific methodologies used in various disciplines | Assessment Measure:  Applicable questions on exams throughout the course  Criterion for achievement:  60% of students with an aggregate score of 70% or better on applicable exam questions | Results:  100% of students had an aggregate score of 70% or more on applicable exam questions  Criterion Met: Yes | 1. Results Analysis:  Expected result  2. Action Plan: |
| Outcome #21:  **GEN ED, Scientific Reasoning-**  Effectively interpret and apply scientific principles and concepts | Assessment Measure:  Applicable questions on exams throughout the course  Criterion for achievement:  60% of students with an aggregate score of 70% or better on applicable exam questions | Results:  100% of students had an aggregate score of 70% or more on applicable exam questions  Criterion Met: Yes | 1. Results Analysis:  Expected result  2. Action Plan: |
| Outcome #22:  **GEN ED, Scientific Reasoning-**  Apply scientific reasoning to the evaluation, analysis, or interpretation of models and theories developed in the sciences | Assessment Measure:  Applicable questions on exams throughout the course  Criterion for achievement:  60% of students with an aggregate score of 70% or better on applicable exam questions | Results:  100% of students had an aggregate score of 70% or more on applicable exam questions  Criterion Met: Yes | 1. Results Analysis:  Expected result  2. Action Plan: |
| Outcome #23:  **GEN ED, Scientific Data Interpretation:**  Effectively apply mathematical principles and quantitative  methods to collect and analyze scientific data | Assessment Measure:  Applicable questions on exams and labs throughout the course  Criterion for achievement:  60% of students with an aggregate score of 70% or better on applicable exam questions | Results:  100% of students had an aggregate score of 70% or more on applicable exam questions as well as labs.  Criterion Met: Yes | 1. Results Analysis:  Expected result  2. Action Plan: |
| Outcome #24:  **GEN ED, Scientific Data Interpretation:**  Utilize the scientific method to arrive at informed conclusions | Assessment Measure:  Applicable questions on exams and labs throughout the course  Criterion for achievement:  60% of students with an aggregate score of 70% or better on applicable exam questions | Results:  100% of students had an aggregate score of 70% or more on applicable exam questions as well as labs.  Criterion Met: Yes | 1. Results Analysis:  Expected result  Follow up:  This is the second time I’m teaching PHYS 100 course. This is a completely online course. In the spring 20 semester PHYS100 was an 8-week course. I believe, for an introductory level physics course, 8 weeks seems to be too short. Students had to study and complete the HW for 2 chapters in a week on top of the mid-term and final exams. I think, the student group in this semester (spring 20) were self-motivated and had better understanding than a regular semester student group (comparing to the fall 19 semester). Therefore, I believe, this class results do not reflect the general trend for an 8-week introductory physics course. I think, I need to study PHYS 100 course with another group of students (an 8-week course) to get a better understanding. For the first time I’ve added a simulation lab component to this course. I believe, that increases student’s understanding of the course materials much better. Again, one thing that I would promote next time is encouraging students to use the tutoring facilities. |

**Notes:**

I have reviewed this report:

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Department Chair Dean

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Vice President of Academic Affairs and Student Services

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