



## **PHYS 1624 – MECHANICS, WAVE MOTION & HEAT**

**Instructor:** Preet Sharma

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**Textbook:** Physics for Scientists and Engineers-A Scientific Approach, 4<sup>th</sup> edition, Randall D. Knight

**Office Hours:** MTW: 08:30-09:30, M: 13:50-15:50.

**Course Description:** This course is designed in such a way that the students get a basic but thorough introduction to the concepts and principles of physics. This will enable them to build up their skills and help them in the other higher level physics courses.

**Lecture Timings:** MWF, 11:00am – 11:50am, McCoy Hall Room 207

**Lab Timings:** Please look up your course schedule for the lab timings. Please attend the section assigned to you. Do not go to any other section.

**Grading Scheme:**

- Lab Grades – 20%
- Assignment 1 – 10%
- Assignment 2 – 10%
- Exam 1 – 15%
- Exam 1 – 15%
- Presentation – 5%
- Final – 25%

**Exam Dates and Timings:**

- Exam 1 – TBA
- Exam 2 – TBA
- Final Exam – As mentioned in the Academic.

### **Assignment and Exam Rules:**

- Assignment 1, assignment 2 and the presentation must be done in the assigned groups. The information about the groups will be given in class.
- Any assignment which is not done as part of the group will receive a zero.

- Every member of the group must be satisfied with every member's contribution.
- Exam 1 and exam 2 must be done individually without any collaboration.
- Final exam must be done individually without any collaboration. Failing to turn in the final exam will result in failing the course.
- Penalty for late work is 10% of the total grade each day.

### **Lecture, Lab and Course Information:**

- Although attendance is not a part of the grading scheme but participation in class is, so classes should be attended regularly if the student wants to get a good grade. There may be short surprise quizzes during the lectures (not more than 5 in a semester) to test the learning of a student and the grades of these quizzes may be a part of the participation grade. The participation points cannot be made up (not even by excused absences)
- Please try to come to class on time. Students may lose participation points for coming late to class.
- In case of an absence from class, a student may make up the Exam grade if the student has an excused absence. An excused absence should always accompany a document or note from an authorized individual or group. Some excused absences include University sponsored events (showing a document or note from authorized personnel), illness (showing a doctor's note), demise of a family member. It is always better to inform the instructor beforehand in case of a legitimate and planned absence.
- Questions regarding grades of assignments and exams will be entertained only within a week of receiving the graded assignments and graded exams back from the instructor.
- Labs will start a week after the lectures start. All lab assignments should be completed during the lab timings unless informed otherwise. In case a student cannot attend the assigned lab section, the student should try to attend other lab sections mentioned in the syllabus. In case a student cannot attend any of the lab sections, the student should make arrangements with the TA to make-up the lab.
- Students are expected to read the chapters to be covered on a particular day prior to coming to class. The instructor will inform the students about what will be covered in a future class and it is the student's responsibility to read before coming to class.
- The "FINAL CALCULATED GRADE" and the "FINAL ADJUSTED GRADE" will remain the same and there will be no rounding up of the final grades.

**Plagiarism:** Cheating and plagiarism will not be tolerated. The students are encouraged and expected to collaborate in the course but each student should turn in their individual work. In case the student has used various sources, it is expected that the student mentions it as a reference in the submitted work.

**Grading:** 90% to 100% -> A, 80% to 89% -> B, 70% to 79% -> C, 60% to 69% -> D, 59% and less ->F

### **Topics:**

#### **Newton's Laws, conservation Laws and Applications of Newtonian Mechanics**

- Concepts of Motion
- Kinematics in 1-D
- Vectors and Coordinate Systems
- Kinematics in 2-D
- Forces and Motion

- Dynamics 1
- Newton's 3<sup>rd</sup> Law
- Dynamics 2
- Work and Kinetic Energy
- Interactions and Potential Energy
- Impulse and Momentum
- Rotation of a Rigid Body
- Newton's Theory of Gravity
- Fluids and Elasticity

### **Oscillations and Waves**

- Oscillations
- Traveling Waves
- Superposition

### **Thermodynamics**

- Macroscopic Description of Matter
- Work, Heat and the First Law of Thermodynamics
- The Micro and Macro Connection
- Heat Engines and Refrigerators

### **Students with Disabilities:**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil protections for persons with disabilities. Among other things, this legislation requires all students with disabilities be guaranteed a learning environment which provides for reasonable accommodation of their disabilities. In accordance with state and federal law, MSU provides academic accommodations to students with documented disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Support Services (DSS) in Room 168 of the Clark Student Center (phone 940-397-4140). The instructor is under no obligation to offer accommodations for students with disabilities who are not registered with DSS.

### **Campus Carry:**

Senate Bill 11 passed by the 84<sup>th</sup> Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at <http://mwsu.edu/campus-carry/rules-policies>.

### **Active Shooter**

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [Safety / Emergency Procedures](#). Students are encouraged to watch the video entitled "*Run. Hide. Fight.*" which may be electronically accessed via the University police department's webpage: "[Run. Hide. Fight.](#)"

**PLEASE KEEP YOUR CELL PHONE IN SILENT MODE WHILE IN CLASS. CELL PHONES ARE NOT ALLOWED DURING EXAMS AND FINAL EXAM. IF YOU MUST ANSWER A CALL, PLEASE LEAVE THE ROOM.**

