I. **Title:**
PHY 235-Mechanics, Heat and Wave Motion
PHY 236-Mechanics, Heat and Wave Motion Laboratory

II. **Catalog Description:** Kinematics, dynamics, energy, momentum, wave motion, and the laws of thermodynamics. Calculus and vector notation used. PHY 235 and PHY 236 must be taken concurrently. Three lectures and two recitation meetings per week for PHY 235. PHY 236 has two hours laboratory per week.

III. **Purpose:** This course is designed for students planning to pursue a technical career (physics, engineering, computer science, chemistry, medicine, etc.). Its basic purpose is to introduce these students to the classical fields of physics commonly referred to as mechanics, thermodynamics and wave motion.

IV. **Course Objectives:** The student should gain an understanding of, and proficiency in the following items.
A. The experimental foundations upon which physics is based.
B. The development of physical laws in the solution of problems.
C. The application of physical laws in the solution of problems.
D. The development of analytical, logical thought processes which are required for problem solution, and which are also applicable in analyzing situations which occur in everyday life.
E. The experimental techniques which are used in science.
F. A familiarity with laboratory equipment and measuring devices.

V. **Content Outline:**
A. Units, Physical Quantities, and Vectors
B. Motion Along a Straight Line
C. Projectile Motion
D. Newton’s Laws and Their Applications
E. Work and Energy
F. Impulse and Momentum
G. Rotational Motion
H. Equilibrium of Rigid Body
I. Periodic Motion
J. Temperature and Heat

VI. **Instructional Activities:** Lecture, discussion, problem solution, computer exercises, laboratory, and examinations.

VII. **Field, Clinical, and Laboratory Experiences:** PHY 236 consists of one 2-hour laboratory per week, with experiments complementing the PHY 235 lecture material.

VIII. **Resources:**
Semester:
Classroom:
Class time:
Instructor:
IX. **Grading Procedures:**
Performance on regular examinations, homework sets, and a comprehensive final exam will be considered in determining the course grade.
Four Hourly Exams-72% - *NO PROGRAMMABLE CALCULATORS*
Final Exam-18%  Monday, December 8, 8 a.m.
Homework-10% - To be completed according to assigned format.

A=90-100  B=80-89  C=70-79  D=60-69  E=0-59

Note: No student may receive audit credit for the course without consent of the instructor. Attendance and participation is required for audit credit.

Note: No student may withdraw from the course and receive a “W” (no penalty) after the University’s posted date of Friday, October 31. Students who officially withdraw from ALL courses November 1 – December 5 will receive a grade of “WP” or “WE”.

X. **Attendance Policy:** No attendance record will be kept. However, each student will be held responsible for all material covered, homework assignments made, changes in exam time, etc. that might have occurred during missed periods.

Make-up: Permission from the instructor prior to the due date is necessary for the make-up of any assignment. Permission from the instructor prior to the scheduled exam time is necessary for the make-up of any missed exam. Exceptions will be made in the case of sudden illness or accident if supporting statements are received from a qualified physician, addressed to the instructor, stating that the student was prevented from performing the missed task.

XI. **Academic Honesty Policy:** Complete academic integrity is expected of all students. Graded individual assignments and examinations should consist solely of the work of that individual whose name is on the document. Cheating on examinations will not be tolerated. Cheating is defined to be the use of any unauthorized source of information for the purpose of deceiving the instructor in evaluating the student’s performance or to gain an unfair advantage over fellow students. Students who are caught cheating will receive a failing grade in the course.

XII. **Text:** *Physics for Scientists and Engineers with Modern Physics*, 5th Ed., Serway

XIII. **Prerequisites:** Calculus (MAT 250) is a co-requisite.