College Physics 1

Term 2 A.Y. 2024-25

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1 Course Outline

0. Review of Vectors
1. Dynamics in Two Dimensions
   - 1.0 Vector-valued functions
   - 1.1 Position vector
   - 1.2 Velocity vector
   - 1.3 Speed
   - 1.4 Acceleration Vector
   - 1.5 Application: Projectiles
   - 1.6 Application: Circular Motion
2. Basic Relativity, Coordinate Independence
   - 2.1 Coordinate Transformations
   - 2.2 Planetary Orbits
3. Forces
   - 3.1 Newton's First Law of Motion: Impulse
   - 3.2 Newton's Second Law of Motion
   - 3.3 Newton's Third Law of Motion: Free Body Diagrams
   - 3.4 Applications: Friction, Drag and Terminal Velocity
4. Kinematics
   - 4.1 Work
   - 4.2 Energy, Kinetic Energy
   - 4.3 Work-Energy Principle
   - 4.4 Power
5. A Glimpse of Modern Physics
   - 5.1 Relativity
   - 5.2 Quantum Mechanics

2 Course Requirements, all in LaTeX

1. Two (2) long exams (Midterms and Finals), 25% each
2. Five (5) quizzes, (10%) each
3. Attendance (to stay registered in the course)

3 Time table

Schedule of Activities		
Meeting Date	Topic[1]	Activity
Dec. 2	Vector-valued functions, Position Vector, Velocity Vector	On-site discussion
Dec. 5		Exercises
Dec. 9	Acceleration Vector, Projectiles, Circular Motion	On-site discussion
Dec. 12		Exercises
Dec. 16	Basic Relativity, Coordinate Independence	On-site discussions
Dec. 19		Exercises
Jan. 6	Application: Planetary orbits	On-site discussion
Jan. 9		Exercises
Jan. 13	(MIDTERM)	Exam
Jan. 16		Exercises
Jan. 20	Forces, Newton's Laws of Motion	On-site discussion
Jan. 23	Applications	Exercises
Jan. 27	Kinematics, Work,	On-site discussion
Jan. 30		Exercises
Feb. 3	Energy	On-site discussion
Feb. 6		Exercises
Feb. 10	Work-Energy Principle	On-site discussion
Feb. 13		Exercises
Feb. 17	Power	On-site discussion
Feb. 20		Exercises
Feb. 24	*(Buffer)*	
Feb. 27	*(Buffer)*	
Mar. 3	(FINALS)	Examination

[1]Refer to the Course Outline.