

PHYSICS 115 MATERIAL IN OLD PHYSICS 111 EXAMS

Here is a guide if you are looking for practice questions in the old Physics 111 tests.

SUMMARY

Giambattista Chapters 1-4: Look at Phys 111 Test 1

Giambattista Chapters 5-9: Look at Phys 111 Test 2

Hooke's Law, Elastic Potential Energy, and Chapter 16 in Giambattista: Look at Phys 111 Test 3

Giambattista Chapters 17, 18, 19: Look at Phys 111 Test 4

Giambattista Chapter 27: Look at Phys 111 final exams

The following pages of this document are the Course Outline for the old Physics 111 course.

Phys 111 covered the material that is now covered in both Phys 115 and Phys 117.

Topics that are greyed-out on the following pages are topics that were covered in Phys 111 but that are not part of the Phys 115 course content.

Greyed out text is material NOT covered in Physics 115

Lecture	Date	Sections to be Covered
1	W 05 Sep	Introduction to course
2	F 07 Sep	1.1. The Nature of Physics Math Quiz
	M 10 Sep	Math review: Algebra
3		1.2. Units 1.3. The Role of Units in Problem Solving The Scientific Method
4	W 12 Sep	The Scientific Method (cont'd)
1. MECHANICS		
		2.1. Displacement
		2.2. Speed and Velocity
5	F 14 Sep	2.3. Acceleration
		2.4. Equations of Kinematics for Constant Acceleration
6	M 17 Sep	2.5. Applications of the Equations of Kinematics
		2.6. Freely Falling Bodies
		2.7. Graphical Analysis of Velocity and Acceleration for ...
7	W 19 Sep	1.4. Trigonometry
		1.5. The Nature of Physical Quantities: Scalars and Vectors
		1.6. Vector Addition and Subtraction
8	F 21 Sep	1.7. The Components of a Vector
		1.8. Addition of Vectors by Means of Components
		3.1. Displacement, Velocity and Acceleration
9	M 24 Sep	3.2. Equations of Kinematics in Two Dimensions
		3.3. Projectile Motion
10	W 26 Sep	4.1. The Concepts of Force and Mass
		4.2. Newton's First Law of Motion
		4.3. Newton's Second Law of Motion
11	F 28 Sep	4.4. The Vector Nature of Newton's Second Law of Motion
		4.5. Newton's Third Law of Motion
		4.6. Types of Forces: An Overview
12	M 01 Oct	4.7. The Gravitational Force
		4.8. The Normal Force
13	W 03 Oct	4.9. Static and Kinetic Frictional Forces
		4.10. The Tension Force
14	F 05 Oct	4.11. Equilibrium Applications of Newton's Laws of Motion
		4.12. Nonequilibrium Applications of Newton's Laws of Motion

Lecture	Date	Sections to be Covered
***	M 08 Oct	<i>(University closed – Thanksgiving Day)</i>
15	W 10 Oct	5.1. Uniform Circular Motion 5.2. Centripetal Acceleration 5.3. Centripetal Force 5.4. Banked Curves

Phys 111: TEST 1: CHAPTERS 1 THROUGH 4

(corresponds to Chapters 1 through 4 in Giambattista text)

16	F 12 Oct	5.5. Satellites in Circular Orbits 5.6. Apparent Weightlessness and Artificial Gravity
17	M 15 Oct	5.7. Vertical Circular Motion 6.1. Work Done by a Constant Force 6.2. The Work-Energy Theorem and Kinetic Energy
18	W 17 Oct	6.3. Gravitational Potential Energy 6.4. Conservative Forces, Nonconservative Forces, and ... 6.5. The Conservation of Mechanical Energy
19	F 19 Oct	6.6. Nonconservative Forces and the Work-Energy Theorem 6.7. Power 6.8. Other Forms of Energy and the Conservation of Energy
20	M 22 Oct	7.1. The Impulse-Momentum Theorem 7.2. The Principle of Conservation of Linear Momentum
21	W 24 Oct	7.3. Collisions in One Dimension
22	F 26 Oct	7.3. Collisions in One Dimension (cont'd) 7.4. Collisions in Two Dimensions 8.1. Rotational Motion and Angular Displacement 8.2. Angular Velocity and Angular Acceleration
23	M 29 Oct	8.3. The Equations of Rotational Kinematics 8.4. Angular Variables and Tangential Variables 8.5. Centripetal Acceleration and Tangential Acceleration
24	W 31 Oct	8.6. Rolling Motion 9.1. The Effects of Forces and Torques on the Motion ...
25	F 02 Nov	9.2. Rigid Objects in Equilibrium
26	M 05 Nov	9.4. Newton's Second Law for Rotational Motion About a ...
27	W 07 Nov	9.5. Rotational Work and Energy 9.6. Angular Momentum
28	F 09 Nov	10.1. The Ideal Spring and Simple Harmonic Motion
***	M 12 Nov	<i>(University closed – in lieu of Remembrance Day)</i>
29	W 14 Nov	10.2. Simple Harmonic Motion and the Reference Circle
30	F 16 Nov	10.3. Energy and Simple Harmonic Motion

TEST 2: CHAPTERS 5 THROUGH 9

(corresponds to Chapters 5, 6, 7 in Giambattista text)

31	M 19 Nov	10.4. The Pendulum 11.1. Mass Density 11.2. Pressure
32	W 21 Nov	11.3. Pressure and Depth in a Static Fluid

Lecture	Date	Sections to be Covered
33	F 23 Nov	11.4. Pressure Gauges
		11.5. Pascal's Principle
		11.6. Archimedes' Principle
		11.7. Fluids in Motion
		11.8. The Equation of Continuity
34	M 26 Nov	11.9. Bernoulli's Equation
		11.10. Applications of Bernoulli's Equation
35	W 28 Nov	11.11. Viscous Flow
2. WAVE MOTION		
36	F 30 Nov	16.1. The Nature of Waves
		16.2. Periodic Waves
37	M 03 Dec	16.3. The Speed of a Wave on a String
		16.4. The Mathematical Description of a Wave
		16.5. The Nature of Sound
		16.7. Sound Intensity
		16.8. Decibels
38	F 04 Jan	16.9. The Doppler Effect
39	M 07 Jan	16.10. Applications of Sound in Medicine
		16.11. The Sensitivity of the Human Ear
		17.1. The Principle of Linear Superposition
40	W 09 Jan	17.2. Constructive and Destructive Interference of Sound Waves
		17.4. Beats
41	F 11 Jan	17.5. Transverse Standing Waves
		17.6. Longitudinal Standing Waves
42	M 14 Jan	17.7. Complex Sound Waves
3. ELECTRICITY AND MAGNETISM		
43	W 16 Jan	18.1. The Origin of Electricity
		18.2. Charged Objects and the Electric Force
		18.3. Conductors and Insulators
		18.4. Charging by Contact and by Induction
		18.5. Coulomb's Law
44	F 18 Jan	18.6. The Electric Field
45	M 21 Jan	18.6. The Electric Field (cont'd)
		18.7. Electric Field Lines
46	W 23 Jan	19.1. Potential Energy
		19.2. The Electric Potential Difference

TEST 3: CHAPTERS 10 THROUGH 18

(corresponds to Hooke's Law, Elastic Potential Energy, and Chapter 16 in Giambattista text)

47	F 25 Jan	19.3. The Electric Potential Difference Created ...
48	M 28 Jan	19.4. Equipotential Surfaces and Their Relation to the ...
		20.1. Electromotive Force and Current
49	W 30 Jan	20.2. Ohm's Law
		20.3. Resistance and Resistivity

Lecture	Date	Sections to be Covered
50	F 01 Feb	20.4. Electric Power 20.5. Alternating Current
51	M 04 Feb	20.6. Series Wiring 20.7. Parallel Wiring
52	W 06 Feb	20.9. Internal Resistance
53	F 08 Feb	20.14. Safety and the Physiological Effects of Current 21.1. Magnetic Fields 21.2. The Force That a Magnetic Field Exerts on a Moving ...
54	M 11 Feb	21.3. The Motion of a Charged Particle in a Magnetic Field 21.4. The Mass Spectrometer
4. LIGHT AND OPTICS		
55	W 13 Feb	24.1. The Nature of Electromagnetic Waves 24.2. The Electromagnetic Spectrum
56	F 15 Feb	24.3. The Speed of Light 25.1. Wave Fronts and Rays 25.2. The Reflection of Light 26.1. The Index of Refraction
<i>M 18 to F 22 Feb – Midterm Break – no classes</i>		
57	M 25 Feb	26.2. Snell's Law and the Refraction of Light 26.3. Total Internal Reflection
58	W 27 Feb	26.5. The Dispersion of Light: Prisms and Rainbows 26.6. Lenses 26.7. The Formation of Images by Lenses
59	F 29 Feb	26.8. The Thin-Lens Equation and the Magnification Equation 26.9. Lenses in Combination
60	M 03 Mar	26.10. The Human Eye
61	W 05 Mar	26.11. Angular Magnification and the Magnifying Glass 26.12. The Compound Microscope 26.13. The Telescope
TEST 4: CHAPTERS 19 THROUGH 26.9 (corresponds to Chapters 17, 18, 19 in Giambattista text)		
62	F 07 Mar	26.14. Lens Aberrations 27.1. The Principle of Linear Superposition 27.2. Young's Double-Slit Experiment
63	M 10 Mar	27.7. The Diffraction Grating
5. MODERN PHYSICS (corresponds to Chapter 27 in Giambattista text)		
		29.1. The Wave-Particle Duality 29.2. Blackbody Radiation and Planck's Constant 29.3. Photons and the Photoelectric Effect
64	W 12 Mar	29.3. Photons and the Photoelectric Effect (cont'd)
65	F 14 Mar	29.4. The Momentum of a Photon and the Compton Effect

Lecture	Date	Sections to be Covered
66	M 17 Mar	30.1. Rutherford Scattering and the Nuclear Atom 30.2. Line Spectra
67	W 19 Mar	30.3. The Bohr Model of the Hydrogen Atom 30.3. The Bohr Model of the Hydrogen Atom (cont'd) 30.7. X-rays
***	F 21 Mar	<i>(University closed – Good Friday)</i>
68	M 24 Mar	30.8. The Laser
69	W 26 Mar	31.1. Nuclear Structure 31.2. The Strong Nuclear Force and the Stability of the Nucleus 31.3. The Mass Defect of the Nucleus and Nuclear Binding ...
70	F 28 Mar	31.4. Radioactivity
71	M 31 Mar	31.5. The Neutrino 31.6. Radioactive Decay and Activity
72	W 02 Apr	31.6. Radioactive Decay and Activity (cont'd) 31.7. Radioactive Dating
73	F 04 Apr	31.8. Radioactive Decay Series 31.9. Radiation Detectors
74	M 07 Apr	32.1. Biological Effects of Ionising Radiation 32.2. Induced Nuclear Reactions 32.3. Nuclear Fission 32.4. Nuclear Reactors 32.5. Nuclear Fusion