

INSTRUCTIONAL MATERIALS ADOPTION

<i>Score Sheet</i>	
I. Generic Evaluation Criteria	
II. Instructional Content Analysis	
III. Specific Science Criteria	

GRADE: 11-12
VENDOR: CORD COMMUNICATIONS, INC.
COURSE: PHYSICS-TECHNICAL CONCEPTUAL
TITLE: PHYSICS IN CONTEXT
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PART I -GENERIC EVALUATION CRITERIA
GROUP V – 2006 TO 2012

PHYSICS TECHNICAL CONCEPTUAL - GRADE 11-12

RESPONSE			CRITERIA	NOTES
Yes	No	N/A		
✓			I. INTER-ETHNIC The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).	
✓			II. EQUAL OPPORTUNITY The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).	

PART II - PHYSICS TECHNICAL CONCEPTUAL - GRADE 11-12
Instructional Content Analysis

Vendor/Publisher: Specific Locations of Content within Product	IMR Committee Response							
	I=In-depth (>80%)	A=Adequate 80%	M=Minimal 60%	N=Nonexistent <60%	I	A	M	N
The instructional materials program presents information and opportunities in a manner that enables the student to:								
	1. History and the Nature of Science							
Embedded throughout Labs	a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (PTC.1.1)							
Embedded throughout student text, teacher guide, and web site	b. communicate that science has practical and theoretical limitations (PTC.1.2)							
Embedded throughout student text, teacher guide, and web site	c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (PTC.1.3)							
Embedded throughout student text, teacher guide, and web site	d. explore science as a blend of creativity, logic and mathematics (PTC.1.4)							
12, 36-37, 48, 51, 171, 188-189, 191, 203, 254-256, 268-269, 299, 388, 399, 408, 410- 411, 436, 451, 453- 455, 463, 469, 470- 474, 475, 477; web site	e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (PTC.1.5)							
12, 36-37, 48, 51, 171, 188-189, 191, 203, 254-256, 268-269, 299, 388, 399, 408, 410- 411, 436, 451, 453- 455, 463, 469, 470- 474, 475, 477; web site	f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (PTC.1.6)							
	2. Science as Inquiry Objectives							
Embedded throughout student text, labs, teacher guide, and web site	a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (PTC.2.1)							

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Embedded throughout student text, labs, teacher guide, and web site	b. discuss ethical practices for science (e.g., established research protocol, accurate record keeping, replication of results and peer review) (PTC.2.2)							
Embedded throughout student text, labs, teacher guide, and web site	c. apply scientific approaches to seek solutions for personal and societal issues (PTC.2.3)							
Embedded throughout labs	d. properly and safety manipulate equipment, materials, chemicals, organisms and models (PTC.2.4)							
	e. explore a variety of environments (e.g., laboratories, museums, libraries, parks and other outdoors locations) (PTC.2.5)							
Embedded throughout student text, labs, teacher guide, and web site	f. use computers and other electronic technologies in an investigative context (PTC.2.6)							
Embedded throughout student text, labs, teacher guide, and web site	g. engage in scientific problem solving and critical thinking (PTC.2.7)							
Embedded throughout labs	h. design, conduct, evaluate and revise experiments (PTC.2.8)							
	3. Unifying Themes Objectives							
Embedded throughout student text, labs, teacher guide, and web site	a. relate biological or technical systems to the natural and designed world (PTC.3.1)							
Embedded throughout student text, labs, teacher guide, and web site	b. use models to make predictions about interactions and changes in systems (PTC.3.2)							
Embedded throughout student text, labs, teacher guide, and web site	c. use graphs and equations relating changes in systems to rate, scale, patterns, trends and cycles (PTC.3.3)							
Embedded throughout student text, labs, teacher guide, and web site	d. cite examples of different characteristics, properties or relationships within a system that might change as its dimensions change (PTC.3.4)							

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	4. Scientific Design and Application Objectives							
	a. summarize technological advances in the biological sciences (PTC.5.1)							
Embedded throughout student text, labs, teacher guide, and web site	b. analyze the interdependence of science and technology (PTC.5.2)							
Embedded throughout student text, labs, teacher guide, and web site	c. relate how scientific skills and technological tools are used to design solutions that address personal and societal needs (PTC.5.3)							
Embedded throughout student text, labs, teacher guide, and web site	d. describe the scientific concepts underlying technological innovations (PTC.5.4)							
Embedded throughout student text, labs, teacher guide, and web site	e. integrate appropriate technology solutions to promote scientific inquiry (PTC.5.5)							
	5. Science in Personal and Social Perspectives							
Embedded throughout student text, teacher guide, and web site	a. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (PTC.6.4)							
Embedded throughout student text, teacher guide, and web site	b. describe occupational opportunities in science and technology (PTC.6.5)							
Embedded throughout student text, teacher guide, and web site	c. make decisions to resolve science-technology-society issues (PTC.6.6)							

PART III – SPECIFIC CRITERIA

Physics Technical Conceptual

Physics-Conceptual is an alternative to the traditional mathematical approach to physics. Emphasis will be on the concepts which underlie the natural laws of the universe. Mathematics will be de-emphasized. Laboratory work will require traditional physics measurements to be made. Students in Physics-Technical or Physics-Conceptual will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated into all activities.

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	1. Mechanics							
2-26, 48-49, 84-94, 122-137, 170-183, 230- 261, 298-306, 324-351; Labs 1.1, 2.1, 3.1, 4.1, 5.2, 6.1, 7.2, 8.1	a. qualitatively and quantitatively analyze mechanical systems (PTC.4.1.6)							
84-94, 109, 120-131, 136-137; Labs 3.1, 7.2	b. calculate displacement, velocity and acceleration (PTC.4.2)							
10-16, 35-36, 49-51, 170-178, 189-190; Lab 4.1	c. draw free body diagrams to illustrate the forces acting on objects (PTC.4.3)							
8-26, 91-92, 125-128, 170-174, 182; Lab 2.1	d. apply graphical and algebraic solutions to vector problems (PTC.4.4)							
244-247, 252-253, 258- 259, 261; Lab 6.1	e. recognize how the conservation of energy applies to (PTC.4.5): • Gravitational systems							
248-251, 260; Labs 1.1, 5.2	• Elastic systems							
376-382; Lab 8.1	• Simple harmonic motion							
2-26, 48-49, 84-94, 122-137, 170-183, 230- 261, 298-306, 324-351; Labs 1.1, 2.1, 3.1, 4.1, 5.2, 6.1, 7.2, 8.1	f. construct models involving mechanical systems that illustrate the utilization of technology (PTC.4.7)							
	2. Fluids							
27-46, 95-105, 138- 148, 184-199, 247, 254-258, 261, 307-315; Labs 1.2, 2.2, 3.2, 4.2, 5.1, 6.2	a. qualitatively and quantitatively analyze fluid systems (PTC.4.8)							

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27-34, 38-40, 95-105, 280-294, 308-315; Labs 1.2, 4.2, 6.2	b. identify and apply the properties of solids, liquids and gases to explain their behavior at different pressures and temperatures (PTC.4.9)							
34-36; Lab 1.2	c. identify and apply Archimedes principle to floating objects (PTC.4.10)							
31-46, 101	d. calculate the pressure of a solid object on a surface and the pressure exerted by a fluid at a given depth (PTC.4.11)							
27-46, 95-105, 138-148, 184-199, 247, 254-258, 261, 307-315; Labs 1.2, 2.2, 3.2, 4.2, 5.1, 6.2	e. construct models involving fluid systems that illustrate applications of technology (PTC.4.12)							
	3. Thermodynamics							
64-79, 157-165, 216-227, 277-294; Labs 1.4, 3.4, 4.4, 5.4	a. qualitatively and quantitatively analyze thermal systems, perform conversions between Fahrenheit, Celsius and Kelvin temperature scales (PTC.4.13,4.14)							
71-76, 79; Labs 1.4, 5.4	b. use specific heat equation to calculate heat gained or lost during phase changes and temperature changes (PTC.4.15)							
157-167; Labs 3.4, 4.4	c. investigate and analyze the different rates of heat transfer by different materials (PTC.4.16)							
64-79, 157-165, 216-227, 277-294; Labs 1.4, 3.4, 4.4, 5.4	d. construct models involving thermodynamics that illustrate technological applications (PTC.4.17)							
	4. Waves, Sound and Optics							
352-397, 450-467; Labs 8.1, 8.2, 9.1, 10.3	a. investigate properties of mechanical and electromagnetic waves PTC.4.18)							
153-154, 156, 357-366, 389-397, 401-402; Labs 8.1, 8.2, 9.1	b. investigate the relationship among the wavelength, velocity and frequency of waves (PTC.4.19)							
352-397, 450-467; Labs 8.1, 8.2, 9.1, 10.3	c. construct models involving energy transfer illustrating applications of technology (PTC.4.20)							

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422-492; Lab 10.3	d. research and describe new developments in optical technology (PTC.4.21)							
	5. Electricity and Magnetism							
47-63, 106-119, 149-156, 200-215, 262-276, 316-323; Labs 1.3, 2.3, 3.3, 4.3, 5.3, 6.3	a. qualitatively and quantitatively analyze electrical systems (PTC.4.22)							
384-389; Lab 5.3	b. investigate properties of electricity and magnetism (PTC.4.23) <ul style="list-style-type: none"> nature of electrical and magnetic fields 							
49-56, 61-62, 108-113, 117, 149-150; Lab 1.3	<ul style="list-style-type: none"> properties of electrical charge 							
200-206, 212	<ul style="list-style-type: none"> conductors and insulators 							
58-60, 63, 151, 156, 207-215, 266, 273, 275-276, 319; Labs 1.3, 3.3, 3.4, 4.3, 4.4, 5.3, 6.3	c. investigate and analyze electrical circuits by (PTC.4.24): <ul style="list-style-type: none"> drawing and constructing electrical circuits 							
203-215; Lab 4.3	<ul style="list-style-type: none"> applying Ohm's law 							
47-63, 106-119, 149-156, 200-215, 262-276, 316-323; Labs 1.3, 2.3, 3.3, 4.3, 5.3, 6.3	d. construct models involving the use of electricity that illustrate applications of technology (PTC.4.25)							
	6. Modern Physics							
408	a. recognize and distinguish between Einstein's General and Special Theories of Relativity (PTC.4.26)							
404-420; Lab 9.2	b. recognize the products of nuclear decay and write decay chain equations (PTC.4.27)							