Optics and Modern Physics

VIDEO LECTURE INDEX / CHAPTERS 1-9

09	291	87:42:53
CHAPTERS	LECTURES	TOTAL VIDEO TIME

Calculated from listed durations; the workbook total is 20 minutes lower.

CHAPTER 01 | Geometrical Optics: Part 1

#	CH. #	LECTURE / TOPIC	DURATION
1	1	Optics_Ch1_1_Nature of objects and images	00:13:52
2	2	Optics_Ch1_2_Reflection of Light	00:16:02
3	3	Optics_Ch1_3_Image Formation in Plane Mirror	00:20:00
4	4	Optics_Ch1_4_Image Formation in Plane Mirror -Illustrations	00:16:23
5	5	Optics_Ch1_5_Field of View	00:28:23
6	6	Optics_Ch1_6_Effects of Rotation in Plane Mirror	00:12:24
7	7	Optics_Ch1_7_Angle of Deviation	00:14:31
8	8	Optics_Ch1_8_Relation Between Velocity of Object and Image	00:26:38
9	9	Optics_Ch1_9_Reflection from a Curved Surface	00:19:35
10	10	Optics_Ch1_10_Image Formation by Spherical Mirrors	00:28:55
11	11	Optics_Ch1_11_Image Formation by Spherical Mirrors-Illustrations	00:15:18
12	12	Optics_Ch1_12_Magnification of Images Formed by Spherical Mirrors p1	00:18:45
13	13	Optics_Ch1_13_Magnification of Images Formed by Spherical Mirrors p2	00:14:38
14	14	Optics_Ch1_14_Magnification of Images Formed by Spherical Mirrors p3	00:16:51

CHAPTER 01 | Geometrical Optics: Part 1 · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
15	15	Optics_Ch1_15_Mirror Formula Magnification of images formed by Spherical Mirror-Illustrations	00:19:33
16	16	Optics_Ch1_16_Mirror Formula Magnification of images formed by Spherical Mirror-Illustrations	00:27:51
17	17	Optics_Ch1_17_Mirror Formula Magnification of images formed by Spherical Mirror-Illustrations	00:16:30
18	18	Optics_Ch1_18_Images Formed by Two Mirrors	00:25:23
19	19	Optics_Ch1_19_Relation Between Object and Image Velocity	00:15:00
20	20	Optics_Ch1_20_Relation Between Object and Image Velocity-Illustrations	00:27:46
21	21	Optics_Ch1_21_Refraction of Light Snell Law	00:22:20
22	22	Optics_Ch1_22_Refraction of Light Snell Law-Illustrations	00:32:51
23	23	Optics_Ch1_23_Vector Representation of Refracted Ray	00:09:56
24	24	Optics_Ch1_24_Critical Angle and Total internal Reflection	00:17:22
25	25	Optics_Ch1_25_Critical Angle and Total internal Reflection illustrations	00:20:38
26	26	Optics_Ch1_26_Critical Angle and Total internal Reflection illustrations	00:21:01
27	27	Optics_Ch1_27_Apparent shift of an object due to Refraction Continue	00:20:03
28	28	Optics_Ch1_28_Apparent shift of an object due to Refraction Continue illustrations	00:27:47
29	29	Optics_Ch1_29_Apparent shift of an object due to Refraction Continue illustrations	00:14:22
30	30	Optics_Ch1_30_Refraction through a parallel slab	00:30:23
31	31	Optics_Ch1_31_Refraction through a parallel slab Illustrations	00:23:31
32	32	Optics_Ch1_32_Slab and mirror Combined	00:21:30
33	33	Optics_Ch1_33_Slab and mirror Combined illustrations	00:32:56
34	34	Optics_Ch1_34_Refraction In A Medium With Variable Refractive Index	00:16:33

CHAPTER 01 | Geometrical Optics: Part 1 · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
35	35	Optics_Ch1_35_Prism	00:34:07
36	36	Optics_Ch1_36_Prism Illustrations	00:27:54
37	37	Optics_Ch1_37_Prism Dispersion of light	00:10:14
38	38	Optics_Ch1_38_Deviation without dispersion & Dispersion without deviation	00:24:36
SOLVED EXAMPLES			
39	39	Optics_Ch1_1_Solved Example	00:09:19
40	40	Optics_Ch1_2_Solved Example	00:06:08
41	41	Optics_Ch1_3_Solved Example	00:09:18
42	42	Optics_Ch1_4_Solved Example	00:09:13
43	43	Optics_Ch1_5_Solved Example	00:07:48
44	44	Optics_Ch1_6_Solved Example	00:08:01
45	45	Optics_Ch1_7_Solved Example	00:09:17
46	46	Optics_Ch1_8_Solved Example	00:12:13
		CHAPTER 01 TOTAL · 46 lectures	14:33:39

CHAPTER 02 | Geometrical Optics: Part 2

#	CH. #	LECTURE / TOPIC	DURATION
47	1	Optics_Ch2_1_Refraction at a spherical surface p1	00:13:17
48	2	Optics_Ch2_2_Refraction at a spherical surface p2	00:24:50

CHAPTER 02 | Geometrical Optics: Part 2 · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
49	3	Optics_Ch2_3_Refraction at a spherical surface Illustrations p1	00:24:56
50	4	Optics_Ch2_4_Refraction at a spherical surface Illustrations p2	00:23:34
51	5	Optics_Ch2_5_Thin lens	00:14:53
52	6	Optics_Ch2_6_Thin lens, lens maker formula	00:17:49
53	7	Optics_Ch2_7_Thin lens, Power of a lens	00:17:08
54	8	Optics_Ch2_8_Thin lens illustrations p1	00:23:58
55	9	Optics_Ch2_9_Thin lens illustrations p2	00:20:16
56	10	Optics_Ch2_10_Rules for image formation and linear magnification produced by a lens	00:40:01
57	11	Optics_Ch2_11_Rules for image formation and linear magnification produced by a lens illustration	00:19:22
58	12	Optics_Ch2_12_Lens with different media on either side p1	00:19:22
59	13	Optics_Ch2_13_Lens with different media on either side p2	00:22:09
60	14	Optics_Ch2_14_Combination of lenses and mirrors p1	00:31:14
61	15	Optics_Ch2_15_Combination of lenses and mirrors p2	00:19:01
62	16	Optics_Ch2_16_Concept of image forming at object itself	00:21:34
63	17	Optics_Ch2_17_Analyzing combination of two thin lenses in contact	00:21:49
64	18	Optics_Ch2_18_Analyzing combination of two thin lenses in contact illustrations	00:24:53
65	19	Optics_Ch2_19_Silverd lens	00:21:09
66	20	Optics_Ch2_20_Silverd lens illustrations	00:18:45
67	21	Optics_Ch2_21_Simple microscope	00:14:53
68	22	Optics_Ch2_22_Compound Microscope	00:22:15

CHAPTER 02 | Geometrical Optics: Part 2 · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
69	23	Optics_Ch2_23_Compound Microscope Illustrations	00:13:12
70	24	Optics_Ch2_24_Telescope	00:24:31
71	25	Optics_Ch2_25_Telescope illustrations	00:25:39
SOLVED EXAMPLES			
72	26	Optics_Ch2_1_Refraction through plane surface reflection from plane mirror	00:08:28
73	27	Optics_Ch2_2_Refraction through plane surface and curved surface	00:12:15
74	28	Optics_Ch2_3_Refraction through curved surface	00:07:40
75	29	Optics_Ch2_4_Mixed concept problem	00:27:42
76	30	Optics_Ch2_5_Power of equivalent mirror	00:10:16
77	31	Optics_Ch2_6_Refraction through spherical surface	00:06:02
78	32	Optics_Ch2_7_image formed by a concave mirror and spherical refracting surface	00:10:21
79	33	Optics_Ch2_8_Refraction through spherical surface and shift in position of the object	00:10:56
80	34	Optics_Ch2_9_Snell’s law and Refraction through spherical surface	00:05:59
81	35	Optics_Ch2_10_Image formed by a concave lens and convex mirror placed with separated principal axis	00:12:10
82	36	Optics_Ch2_11_Concept of image formation through a lens	00:08:28
83	37	Optics_Ch2_12_Power of equivalent mirror	00:13:16
84	38	Optics_Ch2_13_Refraction through thin lens with different medium on both sides	00:08:25
85	39	Optics_Ch2_14_A thin lens cut along principal axis and two parts displaced perpendicular to axis	00:07:55
86	40	Optics_Ch2_15_Image formation by thin lens and thin prism	00:08:08
87	41	Optics_Ch2_16_Silverd lens submerged with water	00:08:36

CHAPTER 02 | Geometrical Optics: Part 2 · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
		CHAPTER 02 TOTAL · 41 lectures	11:47:07

CHAPTER 03 | Wave Optics

#	CH. #	LECTURE / TOPIC	DURATION
88	1	Optics_Ch3_1_Huygen's Wave Theory	00:32:23
89	2	Optics_Ch3_2_Principal of linear superposition interference p1	00:20:00
90	3	Optics_Ch3_3_Principal of linear superposition interference p2	00:28:25
91	4	Optics_Ch3_4_Principal of linear superposition interference Illustrations p1	00:19:50
92	5	Optics_Ch3_5_Principal of linear superposition interference Illustrations p2	00:24:22
93	6	Optics_Ch3_6_Principal of linear superposition interference Illustrations p3	00:34:06
94	7	Optics_Ch3_7_Thin film interference p1	00:15:51
95	8	Optics_Ch3_8_Thin film interference p2	00:19:37
96	9	Optics_Ch3_9_Thin film interference illustrations	00:27:48
97	10	Optics_Ch3_10_Young’s double slit experiment p1	00:32:36
98	11	Optics_Ch3_11_Young’s double slit experiment p2	00:14:47
99	12	Optics_Ch3_12_Young’s double slit experiment Illustrations	00:24:06
100	13	Optics_Ch3_13_Young’s double-slit experiment - Intensity variation in screen	00:25:18
101	14	Optics_Ch3_14_Young’s double-slit experiment - Intensity variation in screen Illustrations	00:32:25
102	15	Optics_Ch3_15_Young’s Double-Slit Experiment with white light	00:19:58

CHAPTER 03 | Wave Optics · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
103	16	Optics_Ch3_16_Maximum orders of interference fringes	00:32:06
104	17	Optics_Ch3_17_Different cases in Young's Double-Slit Experiment-Biochromatic light is inclined on slit place	00:10:14
105	18	Optics_Ch3_18_Different cases in Young's Double-Slit Experiment-Rays not parallel to principal axis	00:23:08
106	19	Optics_Ch3_19_Different cases in Young's Double-Slit Experiment-Sources placed little beyond the central line	00:17:21
107	20	Optics_Ch3_20_Different cases in Young's Double-Slit Experiment-Sources placed beyond the central line at certain finite distance	00:13:11
108	21	Optics_Ch3_21_Different cases in Young's Double-Slit Experiment-Change in optical path in a transparent slab	00:27:30
109	22	Optics_Ch3_22_Different cases in Young's Double-Slit Experiment-Change in optical path in transparent slab illustrations	00:23:00
110	23	Optics_Ch3_23_Different cases in Young's Double-Slit Experiment-Change in optical path in transparent slab illustrations	00:22:02
111	24	Optics_Ch3_24_Different cases in Young's Double-Slit Experiment-Change in optical path in transparent slab illustrations	00:23:02
112	25	Optics_Ch3_25_Fresnel’s Biprism Experiment	00:11:26
113	26	Optics_Ch3_26_Llyoud’s Mirror Experiment	00:15:30
114	27	Optics_Ch3_27_Llyoud’s Mirror Experiment illustrations	00:18:37
SOLVED EXAMPLES			
115	28	Optics_Ch3_1_Basics of Interference	00:07:29
116	29	Optics_Ch3_2_Path difference due to thin film and interference	00:11:22
117	30	Optics_Ch3_3_Shape of interference fringes and calculating path difference in case of reflection of rays	00:16:13
118	31	Optics_Ch3_4_Interference through thin film	00:08:46
119	32	Optics_Ch3_5_Prism and interference through thin film	00:12:37
120	33	Optics_Ch3_6_Analyzing path difference and calculating fringes width	00:13:56
121	34	Optics_Ch3_7_Analyzing path difference and finding ratio of maximum and minimum intensity	00:16:21

CHAPTER 03 | Wave Optics · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
122	35	Optics_Ch3_8_Analyzing path difference and finding ratio of maximum and minimum intensity	00:10:30
123	36	Optics_Ch3_9_Analyzing path difference and finding the intensity at any point on the screen	00:19:44
124	37	Optics_Ch3_10_Creating coherent sources by a thin lens and application of basic YSDE	00:14:55
125	38	Optics_Ch3_11_Rays incident on slits at certain angle and analyzing path difference in case transparent film is placed in the path of the rays	00:13:03
126	39	Optics_Ch3_12_YSDE performed in a medium and transparent film is placed in the path of the rays	00:17:59
127	40	Optics_Ch3_13_Point sources is not on central axis and liquid is filled below the central axis	00:19:20
128	41	Optics_Ch3_14_Introduction of thin film in the path of the ray in YSDE and analyzing intensity at a point on screen	00:12:37
129	42	Optics_Ch3_15_ Introduction of thin film in the path of the ray in YSDE and analyzing intensity at a point on screen	00:10:28
130	43	Optics_Ch3_16_Llyoud’s mirror experiment	00:16:09
131	44	Optics_Ch3_17_Basic interference and YSDE	00:11:47
132	45	Optics_Ch3_18_Creating two virtual coherent sources by two plane mirror and YSDE with bi-chromatic light	00:17:54
		CHAPTER 03 TOTAL · 45 lectures	**14:19:49**

OPTICS AND MODERN PHYSICS

CHAPTER 04 | Diffraction and Polarisation

#	CH. #	LECTURE / TOPIC	DURATION
133	1	Optics_Ch4_1_Diffraction	00:16:18
134	2	Optics_Ch4_2_Fraunhofer Diffraction at a Single Slit p1	00:29:50
135	3	Optics_Ch4_3_Fraunhofer Diffraction at a Single Slit p2	00:13:10
136	4	Optics_Ch4_4_Fraunhofer Diffraction at a Single Slit Illustrations p1	00:13:10
137	5	Optics_Ch4_5_Fraunhofer Diffraction at a Single Slit Illustrations p2	00:11:20
138	6	Optics_Ch4_6_Fraunhofer Diffraction at a Single Slit Illustrations p3	00:19:19
139	7	Optics_Ch4_7_Validity of Ray Optics Fresnel’s Distance	00:10:33
140	8	Optics_Ch4_8_Diffraction by Circular Aperture	00:14:42
141	9	Optics_Ch4_9_Resolving Power of Optical Instruments p1	00:15:46
142	10	Optics_Ch4_10_Resolving Power of Optical Instruments p2	00:18:06
143	11	Optics_Ch4_11_Resolving Power of Optical Instruments Illustrations	00:23:51
144	12	Optics_Ch4_12_Polarization	00:24:02
145	13	Optics_Ch4_13_Malus’s Law	00:17:37
146	14	Optics_Ch4_14_Malus’s Law Illustrations p1	00:20:18
147	15	Optics_Ch4_15_Malus’s Law Illustrations p2	00:31:58
148	16	Optics_Ch4_16_Polarization by Reflection Brewster’s Law	00:10:48
149	17	Optics_Ch4_17_Polarization by Reflection Brewster’s Law Illustrations	00:09:59
150	18	Optics_Ch4_18_Doppler Effect for Light	00:28:43
		CHAPTER 04 TOTAL · 18 lectures	**05:29:30**

CHAPTER 05 | Dual Nature of Radiation and Matter

#	CH. #	LECTURE / TOPIC	DURATION
151	1	Optics_Ch5_1_Photons p1	00:18:37
152	2	Optics_Ch5_2_Photons p2	00:15:38
153	3	Optics_Ch5_3_Photons illustrations	00:28:35
154	4	Optics_Ch5_4_Force Exerted on A Surface Due to Radiation and Radiation Pressure p1	00:21:42
155	5	Optics_Ch5_5_Force Exerted on A Surface Due to Radiation and Radiation Pressure p2	00:22:35
156	6	Optics_Ch5_6_Force Exerted on A Surface Due to Radiation and Radiation Pressure Illustrations p1	00:31:33
157	7	Optics_Ch5_7_Force Exerted on A Surface Due to Radiation and Radiation Pressure Illustrations p2	00:14:15
158	8	Optics_Ch5_8_Force Exerted on A Surface Due to Radiation and Radiation Pressure Illustrations p3	00:29:00
159	9	Optics_Ch5_9_Electron Emission	00:11:27
160	10	Optics_Ch5_10_Photoelectric Effect p1	00:21:56
161	11	Optics_Ch5_11_Photoelectric Effect p2	00:29:22
162	12	Optics_Ch5_12_Einstein Explanation for photoelectric effect	00:22:41
163	13	Optics_Ch5_13_Einstein Explanation for photoelectric effect Illustration p1	00:15:47
164	14	Optics_Ch5_14_Einstein Explanation for photoelectric effect Illustration p2	00:24:22
165	15	Optics_Ch5_15_Wave nature of matter de Broglie Waves or Matter Waves	00:32:52
166	16	Optics_Ch5_16_Wave nature of matter de Broglie Waves or Matter Waves and illustrations	00:31:23
167	17	Optics_Ch5_17_Experiment demonstration of wave nature of electrons-Davisson and Germer Experiment	00:14:57
168	18	Optics_Ch5_18_Heisenberg uncertainty principal	00:16:38
SOLVED EXAMPLES			
169	19	Optics_Ch5_1_Solved Example Energy of Photon	00:04:19

CHAPTER 05 | Dual Nature of Radiation and Matter · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
170	20	Optics_Ch5_2_Solved Example Energy of Photon	00:05:03
171	21	Optics_Ch5_3_Solved Example Force exerted on surface due to Radiation and Radiation Pressure	00:12:06
172	22	Optics_Ch5_3_Solved Example Photoelectric effect, threshold wavelength, saturation current	00:14:56
173	23	Optics_Ch5_5_Solved Example Photoelectric effect	00:06:10
174	24	Optics_Ch5_6_Solved Example Photoelectric effect and motion of a charged particle in magnetic field	00:11:12
175	25	Optics_Ch5_7_Solved Example de-Broglie’s Hypothesis	00:03:33
176	26	Optics_Ch5_8_Solved Example de-Broglie’s Hypothesis and YSDE	00:03:40
177	27	Optics_Ch5_9_Solved Example Finding Photon intensity	00:05:56
178	28	Optics_Ch5_10_Solved Example Finding Photo current	00:03:57
179	29	Optics_Ch5_11_Solved Example Photoelectric effect	00:08:38
180	30	Optics_Ch5_12_Solved Example Photoelectric effect	00:11:23
181	31	Optics_Ch5_13_Solved Example Photoelectric effect	00:09:53
		CHAPTER 05 TOTAL · 31 lectures	**08:24:06**

CHAPTER 06 | Atomic Physics

#	CH. #	LECTURE / TOPIC	DURATION
182	1	Optics_Ch6_1_The History of Atom model	00:10:09
183	2	Optics_Ch6_2_Alpha-Particle Scattering Experiment and Rutherford's Atomic Model	00:13:28
184	3	Optics_Ch6_3_Distance of Closest Approach-Estimation of Nuclear Size	00:12:44

CHAPTER 06 | Atomic Physics · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
185	4	Optics_Ch6_4_Distance of Closest Approach-Estimation of Nuclear Size Illustrations	00:21:35
186	5	Optics_Ch6_5_Bohr Model of the Hydrogen Atom	00:15:56
187	6	Optics_Ch6_6_Radius and velocity of Electron in nth orbit	00:19:42
188	7	Optics_Ch6_7_Energy of Electron in nth orbit	00:30:24
189	8	Optics_Ch6_8_Energy of Electron in nth orbit Illustrations p1	00:23:51
190	9	Optics_Ch6_9_Energy of Electron in nth orbit Illustration p2	00:29:16
191	10	Optics_Ch6_10_Bohr Model to Define Hypothetical Atomic Energy Levels	00:11:44
192	11	Optics_Ch6_11_Atomic Excitations and De-Excitations	00:19:35
193	12	Optics_Ch6_12_Atomic Excitations and De-Excitations illustration p1	00:24:42
194	13	Optics_Ch6_13_Atomic Excitations and De-Excitations illustration p2	00:19:19
195	14	Optics_Ch6_14_Hydrogen Spectrum and Spectral series	00:24:04
196	15	Optics_Ch6_15_Hydrogen Spectrum and Spectral series illustrations	00:17:48
197	16	Optics_Ch6_16_Atomic Collision	00:13:14
198	17	Optics_Ch6_17_Atomic Collision Illustrations p1	00:27:59
199	18	Optics_Ch6_18_Atomic Collision Illustrations p2	00:24:03
200	19	Optics_Ch6_19_Production of X-rays	00:07:14
201	20	Optics_Ch6_20_Origin of X-rays continuous X-rays	00:19:03
202	21	Optics_Ch6_21_Origin of X-rays continuous X-rays illustrations	00:10:34
203	22	Optics_Ch6_22_Origin of X-rays Characteristic X-rays	00:22:47
204	23	Optics_Ch6_23_Moseley’s law	00:24:52

CHAPTER 06 | Atomic Physics · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
205	24	Optics_Ch6_24_Moseley's Law Illustrations	00:19:48
206	25	Optics_Ch6_25_Bragg's Law	00:12:21
SOLVED EXAMPLES			
207	26	Optics_Ch6_1_Solved Example Bohr Model Of The Hydrogen Like Atom	00:11:07
208	27	Optics_Ch6_2_Solved Example Bohr Model Of The Hydrogen Like Atom	00:05:58
209	28	Optics_Ch6_3_Solved Example Bohr Model Of The Hydrogen Like Atom And Spectral Lines	00:04:20
210	29	Optics_Ch6_4_Solved Example Bohr Model Of The hydrogen Like Atom And Spectral Lines	00:12:52
211	30	Optics_Ch6_5_Solved Example Bohr Model Of The hydrogen Like Atom, Momentum Conservation In Atom And Photoelectric Effect	00:12:23
212	31	Optics_Ch6_6_Solved Example Bohr Model Of The hydrogen Like Atom And Spectral Lines And Atomic Collision	00:11:34
213	32	Optics_Ch6_7_Solved Example Bohr Model Of The Hydrogen Like Atom, Spectral Lines And Photoelectric Effect	00:13:11
214	33	Optics_Ch6_8_Solved Example Bohr Model Of The hydrogen Atom And De-Broglie Hypothesis	00:03:36
215	34	Optics_Ch6_9_Solved Example Bohr Model Of The hydrogen Like Atom, Spectral Lines And De-Broglie Hypothesis	00:08:18
216	35	Optics_Ch6_10_Solved Example	00:06:13
217	36	Optics_Ch6_11_Solved Example	00:06:38
		CHAPTER 06 TOTAL · 36 lectures	09:32:22

CHAPTER 07 | Nuclear Physics

#	CH. #	LECTURE / TOPIC	DURATION
218	1	Optics_Ch7_1_Nuclear Structure	00:24:00
219	2	Optics_Ch7_2_Size and Density of Nuclei	00:20:06
220	3	Optics_Ch7_3_Nuclear Binding Energy	00:14:47
221	4	Optics_Ch7_4_Binding Energy Per Neucleon	00:24:15
222	5	Optics_Ch7_5_Nuclear Binding Energy illustrations	00:24:15
223	6	Optics_Ch7_6_Q-Values of Nuclear Reaction	00:29:55
224	7	Optics_Ch7_7_Nuclear Stability	00:16:05
225	8	Optics_Ch7_8_Radioactivity Alpha Decay	00:28:17
226	9	Optics_Ch7_9_Radioactivity Alpha-Decay-Illustrations	00:22:44
227	10	Optics_Ch7_10_Radioactivity Beta-Gama-Decay p1	00:12:24
228	11	Optics_Ch7_11_Radioactivity Beta-Gama-Decay p2	00:18:04
229	12	Optics_Ch7_12_Radioactivity Beta-Gama-Decay Quick Quiz	00:13:33
230	13	Optics_Ch7_13_Radioactivity Gama-Decay	00:06:46
231	14	Optics_Ch7_14_Radioactivity Beta-Gama-Decay illustrations p1	00:31:05
232	15	Optics_Ch7_15_Radioactivity Beta-Gama-Decay illustrations p2	00:19:21
233	16	Optics_Ch7_16_Radioactive Decay and Activity p1	00:20:53
234	17	Optics_Ch7_17_Radioactive Decay and Activity p2	00:14:21
235	18	Optics_Ch7_18_Radioactive Decay and Activity Quick Quiz	00:12:55
236	19	Optics_Ch7_19_Radioactive Decay and Activity illustrations	00:12:03
237	20	Optics_Ch7_20_Half Life of a Radioactive Element	00:23:01

CHAPTER 07 | Nuclear Physics · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
238	21	Optics_Ch7_21_Half Life of a Radioactive Element Quick quiz	00:12:30
239	22	Optics_Ch7_22_Half Life of a Radioactive Element illustrations	00:32:35
240	23	Optics_Ch7_23_Radioactive Equilibrium	00:12:51
241	24	Optics_Ch7_24_Radioactive Equilibrium Quick Quiz	00:16:25
242	25	Optics_Ch7_25_Accumulation of a Radioactive Element in Radioactive Series & Simultaneous Decay of Radioactive Element	00:18:33
243	26	Optics_Ch7_26_Accumulation of a Radioactive Element in Radioactive Series & Simultaneous Decay of Radioactive Element Illustrations	00:13:24
244	27	Optics_Ch7_27_Radioactive Dating	00:23:28
245	28	Optics_Ch7_28_Nuclear Reactions	00:23:51
246	29	Optics_Ch7_29_Nuclear Fission	00:17:54
247	30	Optics_Ch7_30_Nuclear Fission Quick quiz	00:05:20
248	31	Optics_Ch7_31_Nuclear Fission Illustrations p1	00:15:00
249	32	Optics_Ch7_32_Nuclear Fission Illustrations p2	00:25:10
250	33	Optics_Ch7_33_Nuclear Fusion	00:19:38
251	34	Optics_Ch7_34_Nuclear Fusion Quick quiz	00:10:41
252	35	Optics_Ch7_35_Nuclear Fusion as a Source of Energy in Sun	00:26:20
253	36	Optics_Ch7_36_Nuclear Fussion Illustrations p1	00:16:05
254	37	Optics_Ch7_37_Nuclear Fussion Illustrations p2	00:16:44
SOLVED EXAMPLES			
255	38	Optics_Ch7_1_Solved Example Finding maximum kinetic energy of the electron emitted in beta decay	00:06:12
256	39	Optics_Ch7_2_Solved Example Finding kinetic energy of the products in and endothematic nuclear reaction	00:07:49

CHAPTER 07 | Nuclear Physics · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
257	40	Optics_Ch7_3_Solved Example Electron capture or K capture of a nuclear reaction	00:08:52
258	41	Optics_Ch7_4_Solved Example Radioactive decay law and half life	00:08:45
259	42	Optics_Ch7_5_Solved Example Radioactive decay law and half life	00:11:47
260	43	Optics_Ch7_6_Solved Example Radioactive decay law and half life	00:05:55
261	44	Optics_Ch7_7_Solved Example Q-value of a nuclear reation and finding kinetic energy of fission product nuclei	00:06:51
262	45	Optics_Ch7_7_Solved Example Q-value of a nuclear reation	00:08:32
		CHAPTER 07 TOTAL · 45 lectures	**12:40:02**

CHAPTER 08 | Semiconductor Devices and Digital Circuits

#	CH. #	LECTURE / TOPIC	DURATION
263	1	Optics_Ch8_1_Band theory of solids p1	00:21:00
264	2	Optics_Ch8_2_Band theory of solids p2	00:18:26
265	3	Optics_Ch8_3_Current Carriers in Semiconductors	00:14:48
266	4	Optics_Ch8_4_CLassification of Semiconductors	00:34:04
267	5	Optics_Ch8_5_Electrical conductivity of Semiconductors p1	00:19:15
268	6	Optics_Ch8_6_Electrical conductivity of Semiconductors p2	00:13:10
269	7	Optics_Ch8_7_ P-N Junction, Semiconductor Diode	00:16:29
270	8	Optics_Ch8_8_ Biasing P-N Junction, Diode	00:17:58
271	9	Optics_Ch8_9_V-I Characteristics of a P-N Junction Diode	00:12:51

CHAPTER 08 | Semiconductor Devices and Digital Circuits · CONTINUED

#	CH. #	LECTURE / TOPIC	DURATION
272	10	Optics_Ch8_10_ Biasing P-N Junction, Diode Illustrations	00:41:36
273	11	Optics_Ch8_11_Transistors	00:27:05
274	12	Optics_Ch8_12_The Configuration of Transistors	00:24:45
275	13	Optics_Ch8_13_The Characteristics of a Transistors	00:30:10
276	14	Optics_Ch8_14_Transistors as a Amplifier p1	00:24:18
277	15	Optics_Ch8_15_Transistors as a Amplifier p2	00:17:18
278	16	Optics_Ch8_16_Transistors Illustrations p1	00:24:19
279	17	Optics_Ch8_17_Transistors Illustrations p2	00:22:18
280	18	Optics_Ch8_18_Boolean Algebra and Digital Gates	00:19:49
281	19	Optics_Ch8_19_'OR' Gate,'AND' Gate and 'NOT' Gate	00:29:57
282	20	Optics_Ch8_20_Combination of Logic Gates	00:17:00
283	21	Optics_Ch8_21_Combination of Logic Gates Illustrations	00:33:05
		CHAPTER 08 TOTAL · 21 lectures	**07:59:41**

CHAPTER 09 | Communication Systems

#	CH. #	LECTURE / TOPIC	DURATION
284	1	Optics_Ch_9_1_Basic Communication systems	00:16:49
285	2	Optics_Ch_9_2_Some important terminology used in communication system	00:23:30
286	3	Optics_Ch_9_3_Transmission of Radio waves	00:23:54
287	4	Optics_Ch_9_4_Range of a Transmitting Antenna	00:14:54
288	5	Optics_Ch_9_5_Range of a Transmitting Antenna Illustrations	00:14:03
289	6	Optics_Ch_9_6_Communication channel and Bandwidth	00:15:19
290	7	Optics_Ch_9_7_Modulation	00:34:12
291	8	Optics_Ch_9_8_Modulation Illustrations	00:33:56
		CHAPTER 09 TOTAL · 8 lectures	**02:56:37**