Week	Sec-tion	Dates	L#	Content	IQT	Feynman	Tipler
1	A	15-19.09	1	Introduction to the course, the concept Modern Physics, the historical context in which it developed, and its role in physics of the 21st century. The principle of relativity and the Galilean transformations. *Discussion of schedule issues and examination procedure.*	1-19; 26	I.2/2-2/3; 15/1	1-7
			2	Relativity theory 1. Michelson-Morley experiment, Einstein's postulate of special relativity, Lorentz transformation, time dilation and length contraction. Relativity of simultaneity. Relativistic dynamics.		I.15/2-15/8; 16/3; 17/1-17/5	3-21; 23-39
2	A	22-26.09	3	Relativity theory 2. Spacetime diagrams and four vectors. Relativistic vs. classical Doppler effect. Some famous relativistic paradoxes.		I.16-2; 34/6	21-23; 29-54
			4	*Cancelled lecture due to unicareers.lu.*			
3		29.09 - 3.10		*No lecture or exercise due to summer school.*			
4	A	6-10. 10	5	Relativity theory 3. Relativistic momentum, mass and energy.		I.10/5; 15.9; 16-4 - 16.5	65-89
			6	Relativity theory 4. The key concepts of general relativity theory.			97 - 112
5	B	13-17. 10	7	Statistical physics & thermodynamics 1: the Maxwell velocity distribution.	20-23	I.40/4	325-326; 329 -
			8	Statistical physics & thermodynamics 2: Boltzmann's entropy law and the meaning of entropy.	24-25	I.40/2; 44/6; 46/5	326 - 328
6	C	20 - 24. 10	9	Black-body radiation and the suggestion to quantize energy. The meaning of a phenomenological theory.	25-43	I.40/6; 41/2-41/3; III.4/5	123-131
			10				
	C	*24.10* ***Extra lect.***	11	The photoelectric effect and the quantization of light into photons. X-ray radiation and generation and the Compton effect	44-59		131-144
7	C	27 - 31.10 ***Extra ex. 27.10***	12				
			13	Line spectra, the Balmer series and the Rutherford-Bohr atomic model	60-89	I.38/4-38/5; III. 10/1-10/3	153-172
8	C	3 - 7.11	14				
			15	***Basics of particle/wave scattering experiments: from α-particles to x-rays***		***30/4-30/5***	***138-141***
9	C	10 - 14.11	16	Extending Bohr's model with more quantum numbers, spin and Pauli exclusion principle, Stern-Gerlach experiment, and generation of the periodic system	90 - 104	II.35/1-35/2; III. 4/7-5/1; 10/7; 12/1- 12/6	173-174; 293-297
			17				
10	D	17 - 21.11	18	Wave-particle dualism and the de Broglie's matter waves	105 - 120	I.37/1-37/6; I.48/4-48/5; III. 1/1-1/6	193-210
			19				
11	D	24 - 28.11	20	The uncertainty relation and Heisenberg's matrix mechanics	121-131; 154-159	I.6/5; I.37/7-38/2; III. 1/7-2/2	207-209; 213-219
	D		21	The Schrödinger equation, as it was originally introduced. Born's probability interpretation of the Schrödinger equation and Bohr's complementarity concept.	132-143;144-148;160-161	(II.15-5) III. 16/1-16/6; III.21/4	229-233; 210-213
	D	28.11 ***Extra lect.***	22	Dirac's unification of quantum mechanics.	149-155	III.3/1-3/4; 5/1-5/6	
12	E	1.-5./12	23	Schrödinger equation more formally: separation of time and space dependencies, particle in a box.			233-249
			24	Schrödinger equation more formally: expectation values, harmonic oscillator, wave reflection and transmission			250-267
13	E	8-12/12	25	Schrödinger equation more formally: the 3D case, angular momentum.			277-289
			26	Schrödinger equation more formally: hydrogen wave functions, spin-orbit coupling.		III.19/1-19/5	289-303
14	E	15-19/12	27	Schrödinger equation more formally: many particles, generating the periodic system		III.19/6	303-312
			28	Repetition.			