

SEMINARS:

The topic №	Name of topics for class	Number of hours	Maximum score
1	The weak force. The strong force. Grand unified theories	1	5
2	Bubble chambers. High-energy colliding-beam experiments	1	5
3	Quick introduction: four-vectors, Lorentz transformation, light cone	1	5
4	Definition of the cross section. Cross section evaluation	1	5
5	Solutions of the Dirac equation.	1	5
6	Spin, γ^5 and helicity.	1	5
7	Helicity conservation at high energies	1	5
8	Compton scattering.	1	5
9	Propagator for virtual vector bosons.	1	5
10	Relation between G_F and g_w . $O(n)$, $U(n)$ and $SU(n)$.	1	5
11	Neutral current processes.	1	5
12	ν q scattering. Charged Pion and Kaon decay	1	5
13	Local gauge invariance and QCD	1	5
14	Scalar field. Complex field	1	5
15	Coupling of Higgs to the W and Z	1	5