Physical Properties of Diamonds

Syllabus

№	Module	Hours			Type of training	Credits	Teaching language	Notes
		total	contact	independent study				
1	Physical Properties of Diamonds	72	36	36	Lectures	2	English	

Instructor: Marina Fedotova, Associate Professor of the Department of Gems and Precious Metals Processing Technology of North-Eastern Federal University

Location: KFEN, Kulakovsky Str., 48

Course objectives: The aim of *Physical Properties of Diamonds* module is to give to students a conception of the physical properties of diamonds, due to the properties of the diamond crystal structure, physical classification of diamonds, identification of diamonds, etc.

Course outline:

#	Class topic	Hours	#	Class topic	Hours
1	Diamonds as a natural resource	2	10	Physical methods of investigations of diamonds	2
2	The origin of diamonds	2	11	Impurities in diamonds	2
3	Manufacturing of gem diamonds	2	12	Color of diamonds	2
4	Phase diagram for carbon	2	13	Special features of historical diamonds	2
5	Diamond structure	2	14	Treatment methods for diamonds	2
6	Carbon modifications	2	15	Inclusions in diamonds	2
7	Mechanical and optical properties of diamonds	2	16	Gemological issues of identifying of diamonds	2
8	Anomalous birefringence of diamonds	2	17	The use of diamonds in high technology and industry	2
9	Physical classification of diamonds	2	18	Test	2

Assessment (оценивание)	**Readings samples:**
95 – 100 points – A 85 – 94 points – B 75 – 84 points – C 65 – 74 points – D 55 – 64 points – E 45 – 54 points – FX Less than 44 points – F	1. Tappert R., Tappert M.C. Diamonds in Nature. A Guide to Rough Diamonds. Springer. 2011. - 153 p. 2. Burchell T.D. (ed.) Carbon Materials for Advanced Technologies. 1999, 540 p.