Teaching crystal growth at geological faculty

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The crystal growth is taught in many universities, and its scope mostly depends on the profile of the department and/or college. The mineralogical aspect of this discipline is a base for understanding of crystallization processes in the nature. Here, the main attention is focused on both fundamentals and laboratory components of the new long-term course concerned with formation of natural and synthetic minerals as an example of a self-consistent curriculum containing lectures, seminars, laboratory practices and research work. This curriculum is combined the educational and research experience of the author in the field of growth and morphology of crystals at the Geological Faculty of Moscow State University and his collaboration with other universities and research institutions during the last three decades.

Current course topics are as follows. Spatial-temporal factors of "terrestrial" crystallization. Crystal growth processes in nature as seen from the laboratory. Simulating the natural conditions. Comparative studies of surface and internal morphology of natural and synthetic crystals. Associations of minerals. General characteristic of mineral crystallization: crystal growth in magmas and pegmatites; crystallization under hydrothermal conditions; surficial/sedimentary crystallization; metamorphic crystallization. Comparative consideration of crystal growth of technological minerals in nature and laboratory: quartz, diamond, calcite, mica, corundum, zeolites, etc.

In conclusion, various interdisciplinary aspects of this course will be discussed.