

## **Passage of industrial practice of 2nd and 3rd year students of the specialty "Space technique and technologies" at the Baikonur cosmodrome**

Students 2 and 3 courses of the department "Space technique and technology", passed practical training at the Baikonur cosmodrome. This practice was held on the basis of the International Space School named after VN Chelomey in the city of Baikonur since May 20, 2018. on May 29, 2018.

As a result of the practice of students, a cosmonautics program was drawn up, according to which the students of the department "Space technique and technology" with the practice leaders arrived at the International Space School named after VN Chelomey on May 20, 2018. The total number of students who arrived in the city of Baikonur were 75 students and 3 managers from the faculty of professors and professors of the department "Space technology and technology" - Abdirashev O.K., Bazarbek A.D. and Zhumanbaeva A.S. - were appointed responsible for the students during the practice period.

On the day of arrival, the students visited the space museum of the International Space School, got acquainted with the laboratories of rocket modeling, space modeling and robotics. Instruction was given on safety precautions, on the rules of the internal labor schedule and measures to ensure safety in the presence of Baikonur Cosmodrome objects (installation and test complexes of LV and spacecraft, ground launching complexes, measuring points, filling stations, technical positions, etc.).

On the first day, the training sessions of the school's director, Honored Teacher of the Russian Federation, Shatalov D.V. began on aerospace education projects "Space Astronomy", astronomical observations of the starry sky and planets: Venus, Mars, Saturn, Jupiter, and the Moon.



During the scientific and practical internship, consultations were held with the teachers of the MSC named after V.N. Chelomey and the Moscow Aviation Institute, practical training in the International Space School named V.N. Chelomeya on projects of aerospace education "Baikonurovedenie", "Lessons from Space", "Cosmic Modeling". Launches of rocket models. Lectures of teachers and specialists from the MCS, MAI, joint venture "Baiterek", "Kazakhstan Garysh Sapary" on cosmonautics, as well as practical training in the International Space School V.N. Chelomeya by specialization: 1) Spacecraft. 2) Microprocessors and microprocessor systems. Consultation with the teachers MSCH them. V.N. Chelomey and MAI.



Students of the ENU visited the technical complex of the KRK MTKS - "Energia-Buran", the KRK of the "N-1" lunar rocket, the Soyuz-FG CR 11A511. Visit to the assembly and testing building of LV 11A511 - Soyuz-FG (LV N-1 and RN 11K25 Energia) - comp.112-1, as well as the assembly and testing site of the launch vehicle 11A511 - Soyuz-FG - MIC comp.121-1. 251-landing complex OK "Buran" - airfield "Jubilee".



The landing complex of OK "Buran" was examined at the airfield "Yubileiny". Launch Complex of the Energia LCN - UKSS Sq. 250. Inspection of the SC RKN "Energia" - UKSS - pl. 250.



Also visited the KRK RKN "Soyuz-FG" - "Gagarin start", as well as the launch pad 17P31-5 (sq.1) "Gagarin start", within the framework of which was visited the monument of the First artificial Earth satellite at the Gagarin launch (sq.1 ) and the historical MIK sq.1A, where the preparations for the launch of the first artificial Earth satellite and the first cosmonaut of the planet Earth Yu.A. Gagarin.



In addition, the students visited the Soyuz-MS TPK MC and Progress-MS TGK, the working place for checking the tightness of spacesuits from the crew of cosmonauts before the flight to the MIC building MIC 254-1. After that, practical training sessions were held at the International Space School named after M.Sh. V.N. Chelomeya on projects of aerospace education "Baikonurovedenie", "Lessons from Space", "Cosmic Modeling", which resulted in students launching models of their manufactured missiles.



In the internship program, a visit was made to the technical complex of the KRK Proton-M, the refueling-neutralization station (ZNS) 11G141, where the undergraduates tried themselves as operators of this station. Visiting the refueling and neutralization station 11G141 (sq. 91A, room 101-1-filling station for spacecraft and the Republic of Belarus, the room for the dispensers "O" and "N," the receiver room, the air-room "O", units 11G426, 11G427. complexes of the Baikonur cosmodrome, the teachers of the VN Chelomey MChS and MAI answered questions from students and held consultations on the work of various spaceport facilities.



Visit to the SK8P882K of the Proton-M rocket, Sq.81 and Sq.84 (remote command post of the VKP facility 84-1, compressor center facility 84-10), assembly and testing building - Soyuz-2.1a Mik. 31-40, launch complex of the Soyuz-2.1a booster rocket-17P31-6 (SK sq.31), MIK Zenit, the construction of sq.42-1, after which the training sessions and consultations with the instructors of the MCS them. V.N. Chelomey and MAI on projects of aerospace education "Space astronomy", astronomical observations of the starry sky and planets: Venus, Mars, Saturn, Jupiter, the Moon.



Also during the scientific research trip there was organized a visit to the Cosmonautics Museum of the GDK pl. 10, historical and memorial places of the city of Baikonur: the monument of the Soyuz rocket, the 15A15 combat intercontinental ballistic missile monument, the academy: Korolev, Ryazansky, Kuznetsov, a monument to the dead missile testers and laying flowers at the monument to the dead missile testers № 10.



On the last day of practice, students were given an excursion to the cosmonaut training center of the TsKK. Yu.A. Gagarin sq.17, the hotel "Cosmonaut", in which the cosmonauts stay before departure to space, as well as in the conference hall of the "Cosmonaut" hotel, sq.17, which hosts a pre-launch conference on the preparedness of the spacecraft and astronauts.



Based on the results of the students' practical experience, the results of the cosmonautics practice and the cycle of practical training in cosmonautics at the Baikonur Cosmodrome and the International Space School were summed up. After the delivery and protection of the final works, solemn presentation of certificates and diplomas to participants of the practice took place. And also awarding diplomas winners of the competition for the project "Space Modeling".

