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| **Program name** | **Specialist's degree program**<br>**Information and telecommunication systems in transport and their information protection** |
| **Key facts** | The program is designed to train specialists in the field of technical operation of radar, radio navigation and communication systems, means of monitoring and diagnostics of the technical condition of the equipment in operation; systems for transmitting information about the movement of vehicles and the external conditions of their operation; systems for integrated processing, display and registration of information about the movement of vehicles and external conditions; traffic control systems for vehicles and systems to prevent their dangerous approaches. |
| **Program length** | 5 years |
| **Starting date** | September, 1st |
| **Language of instruction** | Russian |
| **Prerequisites** | • School leaving certificate of secondary (full) comprehensive education, certificate of vocational education or diploma of higher education<br>• Entrance exams in Physics, Informatics and ICT, Maths, Russian Language<br>• preference is given to students who have previously participated in creative contests and (or) olympiads of the corresponding field of study |
| **Tuition fee per year** | 170 622 roubles (~ 2,297 USD) |
| **Program leader/team** | Head of Department:<br>Felix Zander, Cand.Sc. (Engineering), assistant professor<br>Head of the Department of Electronic Systems, School of Engineering Physics and Radio Electronics, Siberian Federal University |
| **Qualification** | Engineer |
| **Skills/ objectives** | -Carrying out works on maintenance and repair of transport radio-electronic equipment, its power and energy systems;<br>-monitoring and determining the operability of installed, operated and repaired transport radio-electronic equipment, forecasting its technical condition;<br>-technical operation of transport radio electronic equipment in accordance with the requirements of regulatory and technical documentation;<br>-support of work on the modernization of transport radio electronic equipment, subject to agreement with the developer of the equipment, selection and replacement of its elements and systems;<br>- organization of safe installation and adjustment of transport radio-electronic equipment;<br>-Carrying out marketing of services for the operation of transport radio electronic equipment of various forms of ownership;<br>-participation in the implementation of the functions of supervision over the safe operation of transport radio electronic equipment;<br>-organization of internal audit and preparation for certification of objects of maintenance and repair of transport radio electronic equipment;<br>-development of technical and technological documentation for the maintenance and repair of transport radio electronic equipment;<br>-participation in the development of draft specifications, requirements, technological documentation for new objects of professional activity;<br>-formation of the goals of projects and programs for solving production problems, criteria and indicators of achieving goals, building the structure of their relationships, identifying priorities for solving problems, taking into account the social aspects of activities;<br>-development of generalized options for solving problems, analyzing these options, predicting |

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| | the consequences, finding compromise solutions;<br>-participation in the design and development of service, auxiliary equipment, circuit solutions for automation systems of operation processes;<br>-participation in fundamental and applied research in the field of operation of transport radio electronic equipment;<br>-analysis of the state and dynamics of quality indicators of objects of professional activity using problem-oriented methods and research tools;<br>-creation of theoretical models that allow predicting the properties of objects of professional activity;<br>-development of plans, programs and methods of research of objects of professional activity;<br>-information search and analysis of information on research objects;<br>□ technical and organizational support of research;<br>-analysis of research results and development of proposals for their implementation;<br>-solving optimization problems to improve the efficiency of using transport radio electronic equipment;<br>-participation in the implementation and development. |
| **Curriculum** | Philosophy<br>History<br>Foreign language<br>Life safety<br>Physical education<br>Economics and organization of production;<br>Jurisprudence<br>Mathematics<br>Information Technology<br>Physics<br>Ecology<br>Engineering and computer graphics;<br>Fundamentals of circuit theory;<br>Radio materials and radio components;<br>Metrology and radio measurements;<br>Radio circuits and signals;<br>Digital devices and micro-processors;<br>Microelectronics<br>Circuitry of analog electronic devices;<br>Fundamentals of Computer Design; and Modeling of Radioelectronic Means;<br>Radioautomatics<br>Electrodynamics and propagation of radio waves;<br>Digital signal processing;<br>Physical foundations of electronics;<br>Circuitry of digital devices;<br>Electroconverting devices of radioelectronic facilities;<br>Signal generating and conditioning devices;<br>Signal receiving and processing devices;<br>Certification and standardization of electronic devices;<br>Radar systems<br>CAD<br>Radio navigation systems<br>Methods and means of radio navigation measurements;<br>Satellite systems for navigation, communication and surveillance;<br>Design of radio navigation systems;<br>Technical operation of radioelectronic equipment<br>Management Basics<br>Professional English<br>Information technology management;<br>Infocommunication systems and their information protection; |

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| **Contacts** | E-mail: kafedrares@mail.ru,<br>FZander@sfu-kras.ru.<br>Tel: +7 (391) 249-77-52<br>Address: 28Б, ul. Kirenskogo, Room Б-417 |