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COMPETENCE DESCRIPTION

"Network and System Administration."

2024 г.

**Name of the competence**: "Network and System Administration"

**Format of participation in the competition**: individual

**Competency Description**.

The Network and Systems Administrator establishes, operates, and maintains computer networks and other data communications systems. Operates, maintains, and troubleshoots network systems; operates and maintains data transmission systems; assists network users and troubleshoots data transmission problems; identifies areas in need of hardware and software upgrades; installs computer hardware, network software, operating system software, and software applications; performs startup and shutdown, and backup and disaster recovery operations

Nowadays, computer networks are the main means of communication and play a key role in the management of production and management processes. They integrate into a single system computing facilities located at many remote workplaces that share hardware, software and information. Employees' workplaces cease to be isolated and are united into a single system, which has special advantages obtained by networking of computing equipment in the form of a computer network. A computer network allows hardware resources to be shared between network users and used economically.

The activity of Network and System Administrator includes tasks of varying degrees of complexity: from repair, selection and purchase of computer hardware and components to writing and technical support of web-sites, to servicing companies with powerful servers and numerous user stations.

The primary responsibilities of a network and system administrator are: to provide network security for the organization and maintain optimal computer, network, and computer software performance for users.

The system administrator creates and maintains computer complexes and networks, controls the correct operation of operating systems and software, deals with databases, installs new software, coordinates and administers systems, including in remote access mode, etc.

No enterprise or organization in the modern world can not function effectively without computer equipment, which means that in any organization in demand for specialists in Network and System Administration.

**Regulatory legal acts**

As the Competency Description contains only information related to the relevant competency, it should be used on the basis of the following documents:

* **FSES SPO:**

09.02.06 Network and System Administration.

* **Professional Standard**:

System administrator of information and communication systems; Approved 29.09.2020, № 564 by the Ministry of Labor and Social Protection of the Russian Federation.

* **ECS:**
  + 1. Technician-programmer, Unified Qualification Directory of Positions of Managers, Specialists and Other Employees (UQD), 2019, approved by the Decree of the Ministry of Labor of the Russian Federation from 21.08.1998 N 37 (edition of 15.05.2013);
    2. Software Engineer, Unified Qualification Directory of Positions of Managers, Specialists and Other Employees (UQD), 2019, approved by the Decree of the Ministry of Labor of the Russian Federation from 21.08.1998 N 37 (version of 15.05.2013).
* **Qualification characteristics (professionogram)**

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| Type and class of occupation | Occupation Type:   * "Man-Technology" * "Man-Sign."   Class: heuristic profession as it is related to the design and creation of new objects. |
| Activity content | * The activity of a system administrator includes tasks of varying degrees of complexity: from repair, selection and purchase of computer hardware and components to writing and technical support of web-sites, to servicing companies with powerful servers and numerous user stations. * The primary responsibilities of a system administrator are: to provide network security for the organization and maintain optimal computer, network, and computer software performance for users. * System administrator creates and maintains computer complexes and networks, controls the correct operation of operating systems and software, deals with databases, installs new software (makes "upgrade"), coordinates and administers systems, including in remote access mode, etc. |
| A network and system administrator should know: | * all types of operating systems and basic office programs; * types and purpose of network and server equipment; * the possibility of compatibility of equipment of different types and manufacturers with each other; * device and technical characteristics of computer and office equipment; * databases and the principles of database management; * fundamentals of digital electrical engineering; * basics of scientific organization of work, safety equipment; * basics of information protection. |
| A network and systems administrator must be able to: | * assemble and test computer systems; * quickly and efficiently troubleshoot hardware and computer programs; * Maintain a network or multiple computers, including administration over a remote network; * fluently read technical literature in English; * read electronic circuits; * to maintain the network; * Provide assistance to network users. |
| Requirements for individual characteristics of a specialist | The following professional and important qualities are required to be successful as a system administrator:   * abstract logical thinking; * an analytical mind; * A dominant tendency to work with technology; * A pronounced aptitude for working with information; * an excellent ability to concentrate; * well-developed logical abilities; * math ability; * emotional stability; * organizational skills; * Responsibility; * a large amount of short-term memory. * emotional stability. |
| Working conditions | Individual work/team work |
| Medical contraindications | * musculoskeletal dysfunction; * poor vision (uncorrected myopia); * chronic migraines; * neuropsychiatric illnesses. |
| Basic education | The profession of a programmer requires secondary vocational or higher education. |
| Ways of getting a profession | Education in educational organizations of secondary vocational, higher education.  Training in educational organizations of additional professional education. |
| Areas of application of the profession | Network and system administrators work to maintain computers, electronic information networks, and office equipment in almost any organization:   * in production, processing and trading enterprises; * in government and commercial organizations; * in the computer centers; * in military organizations; * in educational institutions. |
| Career prospects | * specialization and development of related fields; * managerial path of development. |

* **GOSTs**

1. *GOST R 58608-2019 Information technologies. IT strategic management. Structure and model*
2. *GOST R 55767-2013 Information technology. European ICT Competency Framework 2.0. Part 1. A common European ICT competency framework for all industry sectors*
3. *GOST R 58608-2019 Information technologies. IT strategic management. Structure and model*

* **Sanitary Regulations**

1. *SanPiN 9-131 RB 2000 "Hygienic requirements for video-display terminals, electronic-computing machines and work organization";*
2. *SanPiN 2.2.2/2.4.1340-03 Hygienic requirements for personal electronic computing machines and organization of work;*

The list of professional tasks of the competence specialist is determined by the professional field of the specialist and is based on the requirements of the modern labor market for this specialist*. (FSES, SOW)*

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| **No. n/a** | **Types of activities/labor functions** |
| 1 | Identification and remediation of incidents in information and communications technology systems |
| 2 | Maintenance of information and communications technology systems hardware and software tools |
| 3 | Implementation of a scheme for backing up, archiving and restoring configurations of information and communications technology systems hardware and software according to approved plans |
| 4 | Modifications to information and communications technology systems hardware and software according to the approved workplan |