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FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF HIGHER
EDUCATION
"NORTH CAUCASUS FEDERAL UNIVERSITY"

SUGGESTIONS FOR TEACHING

on the organization and conduct of educational practice

"Introductory practice"

for students of the field of study

11.03.02 Infocommunication Technologies and Communication Systems,
Profile "Intelligent Data Processing in Infocommunication Systems and
Networks"

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1 Introduction

Practical training is carried out in accordance with the programs for full-time students in the field of training 11.03.02 Infocommunication Technologies and Communication Systems, profile – Intelligent Data Processing in Infocommunication Systems and Networks.

The methodological guidelines contain requirements for the organization and procedure for conducting educational practice of students, its main content.

The methodological guidelines formulate the rights and obligations of interns, consider a list of issues for students to study, as well as requirements for the formation and defense of an internship report.

The guidelines are intended for students of this field of study, faculty of the graduating department, internship supervisors from the department and the enterprise.

2 Purpose of the training Introductory Practice

The objectives of the educational introductory practice in the direction of training 11.03.02 Infocommunication Technologies and Communication Systems are to ensure the continuity and consistency of mastering the skills and abilities of professional activity by students, consolidation and deepening of universal competencies in the field of informatics and computer engineering, formed in students in the process of training and as a result of independent work on the study of the subject area, the study of the information and computer system existing at the enterprise, the study of hardware and software used at the enterprise, the identification of problem situations, familiarization with standard solutions to the problem set in practice.

The main tasks of educational practice:

The objectives of educational introductory practice are:

- familiarization with the methods of team building, team interaction and monitoring of teamwork when working together within the framework of the task using methods, information technologies and foresight technologies;
- familiarization with the general characteristics of ensuring security and sustainable development in the field of infocommunications;
- familiarization with the methods of accumulating, transmitting and processing information;
- familiarization with mathematical methods for solving problems of a theoretical and applied nature;
- familiarization with the methods of searching and analyzing information necessary to solve the problem, choosing the optimal solution and assessing its advantages and disadvantages;
- familiarization with the main methods of conducting experimental research, methods and means of measuring and conducting experimental research;
- familiarization with the methods of processing and presenting the data obtained and assessing the error of measurement results;
- familiarization with the basic laws of information transmission in information and communication systems, the main types of signals used in telecommunication

systems, the features of the transmission of various signals through channels and paths of telecommunication systems;

- familiarization with the capabilities of computer technology and software for solving problems of control and algorithmization of information processing processes;
- familiarization with the methods of computer modeling of physical processes in the transmission of information, engineering and computer graphics techniques;
- familiarization with the rules for choosing programming languages and languages for working with databases, environments for the development of information systems and technologies, based on the existing tasks.

3 Internship Location

As a place for internship, it is recommended:

- telecom operators;
- research and development organizations;
- design organizations;
- construction and installation enterprises;
- industrial enterprises equipped with modern telecommunication equipment, measuring and computer equipment.

When choosing a place for internship, it is necessary to take into account the possibility of studying materials and equipment related to the topic of the final qualification work.

In order to organize the educational practice of one or a group of students at a particular enterprise, an agreement is concluded between the administration of the educational institution and the administration of the enterprise.

Sending students to practice is formalized by an order (directive) of the institute.

Admission of students to practice and their distribution to departments and workplaces is formalized by an order of the enterprise.

4 Practice Guidance

The management of the educational practice is carried out by the directorate and the graduating department. The person responsible for the management of the educational practice from the graduating department is appointed from among the experienced teachers of the department by the order of the institute.

At the enterprise, the trainee is assigned a manager from the engineering and technical personnel, who is appointed by the order of the organization.

The Institute provides:

- distribution of students for internship;

- conclusion of contracts with enterprises;
- preparation of an order to send students to practical training;
- issuance of referrals and diaries for practice at the end of the examination session.

Head of Practice from the Graduating Department:

- carries out methodological guidance of educational (technological) practice of students;
- ensures the implementation of preparatory and current work on the organization of practice;
- develops a program of educational practice, individual tasks for students with the indication of basic and additional literature;
- if necessary, coordinates the program and individual tasks of educational practice with managers from enterprises;
- coordinates the program and individual tasks of the students' internship in accordance with the topic of the diploma project and the place of internship;
- prepares and conducts organizational meetings of students together with the dean's office before the start of the internship;
- if necessary, consults students during the period of educational practice and before the defense of reports;
- together with the Institute, within two weeks after the end of the internship, organizes and accepts the defense of reports on the internship;
- submits the results of the training practice to the Department;
- participates in the preparation and conduct of the scientific and methodological conference of students based on the results of the internship, summarizes the practice of students of the Department;
- organizes the storage of students' internship reports and diaries in the department for a specified period.

The head of the internship from the enterprise provides:

- management of the student's activities during the internship in accordance with the program, individual assignment and technical capabilities;
- gives daily individual tasks to the student and ensures control of the completeness and quality of its implementation;
- if necessary, coordinates the individual assignment for the student with the head of the department;
- At the end of the internship, he gives the student a reference on the level of his technical training, acquired skills, his discipline, diligence and initiative in work, on the student's participation in the social life of the organization.

5 Internship procedure at the enterprise

Students are obliged to arrive at the enterprise (organization) within the time

specified in the internship agreement. The student's stay in the internship is formalized by the order of the enterprise.

On the first day, students are briefed on occupational health and safety and get acquainted with the organizational structure of the enterprise as a whole.

In accordance with the internship program and individual assignment, students are assigned to workplaces. To manage the practice, focused on the specifics of the enterprise and its divisions, each intern is assigned a manager from among qualified and experienced specialists.

During the internship, students observe and fulfill all the requirements in force at the enterprise, the rules of internal labor regulations. For the duration of the internship, the student can be hired for a vacant full-time position with the performance of a specific production task and remuneration. In this case, all the provisions of labor legislation and the provisions of the relevant job description apply to him.

Practice management and control over the implementation of individual tasks is carried out by the assigned supervisor.

Head of the internship from the enterprise:

- provides conditions for the performance of individual tasks, obtaining information by students about the technique and technology of production, the organization of production and labor, economics and production management and the implementation of the internship program as a whole;

- in accordance with the technical and organizational capabilities, develops an individual plan of the student's work for each day during the entire period of practice;

- daily monitors the student's performance of individual tasks, internal regulations of the enterprise, keeping an internship diary;

- if necessary, coordinates the program and individual assignment of the student with the internship supervisor from the department;

- advises the student on organizational and technical issues, keeping a diary, the content of the report;

- assists students in choosing and clarifying the topics of diploma theses that are of practical interest to the enterprise;

- helps in the selection, systematization and analysis of material for the development of a future diploma project;

at the end of the internship

- checks and certifies the practice diary;

- verifies the content of the internship report;

- gives an opinion on the student's work during the internship, with an assessment of his fundamental, general professional and special training, attitude to the performance of tasks and the internship program.

On the last day of the internship, students finalize the diary and the internship report, agree on their content with the supervisor. A student who has not completed the internship program and received a negative feedback on the work is sent to the internship again or expelled from the university.

6 Rights and obligations of students during the internship period

During the internship, students have the right to:

- receive the necessary information to perform an individual task;
- use the library of the enterprise, and with the permission of the chief specialists and heads of departments, information funds and technical archives of the enterprise;
- to receive competent advice from the company's specialists on the issues provided for by the assignment for the internship;
- with the permission of the head of the internship from the enterprise and the head of the department, use computing and office equipment to process information related to the performance of an individual task;

During the internship, students are obliged to:

- fully and independently perform the tasks provided for by the program and the schedule of the internship;
- collect, systematize, process and analyze the collected information and illustrative materials in accordance with the individual task;
- be responsible for the performance of the assigned work at the workplace and ensure the necessary quality of its performance;
- regularly keep an internship diary and timely submit it for control to the internship manager at the enterprise;
- obey the internal labor regulations in force at the enterprise, strictly observe the rules of labor protection;
- At the end of the internship, submit a diary and a report on the internship from the enterprise to the head of the internship in order to check and protect them.

A student who has not completed the internship program and the task within the established period, who has received a negative review from the supervisor or an unsatisfactory grade during the defense, sanctions are applied as a low-achieving student, up to expulsion from the university.

If a student violates labor discipline and internal regulations of the enterprise, on the recommendation of the head of the department and the head of the internship from the enterprise, he may be suspended from the internship, which is reported to the director of the institute and the director of the graduating department. At their suggestion, the director may consider the issue of expelling the student from the university.

7 Composition of the internship task

The content of the educational practice is determined by its purpose, the stage of training of the student, the specifics of the enterprise and the workplace of the intern.

A number of issues studied are common to all levels of educational practice, but the depth of study of issues, awareness of certain technical and organizational solutions should increase with each practice.

The general objectives of the practice are:

- study of the structure of the enterprise, organization and technology of production, the main functions of production, economic and managerial units;
- study of material and technical and personnel support of production;
- study of modern technologies and equipment used in the telecommunication industry, comparison of technologies and equipment from different manufacturers;
- study of organizational and technical measures to ensure life safety at the enterprise as a whole, as well as during equipment maintenance and construction and installation works;
- study of issues of production organization;
- Study of ITU-T recommendations, the main regulatory documentation used in the enterprise as a whole and in the workplace.

If necessary, the thematic plan can be adjusted taking into account the specifics of the place of internship. Adjustment of the plan is carried out with the participation of the internship supervisor from the graduating department and certified by him.

8 Contents of the Internship Report

The internship diary is the main reporting document confirming and characterizing the student's internship.

The diary reflects the basic information about the place, terms, content and results of the internship.

Data on the place of internship, the start and end dates of the internship must be certified by the personnel department of the enterprise. The absence of the signature of the HR inspector and (or) seals makes this document invalid.

The student receives an individual assignment for the internship in accordance with the purpose of the internship, the place and features of its passage. If necessary, the task is adjusted by the head of the internship from the department with the participation of the head of the internship from the enterprise and the student.

The calendar plan for the implementation of the internship program is maintained by the student on a daily basis. The work plan is drawn up jointly with the head of the enterprise. It must correspond to the individual task for the internship, the approximate distribution of the time norm (given in the task).

The diary contains a brief summary of the work performed. Upon completion of the work, the supervisor certifies the fact of their completion.

At the end of the internship, the head of the enterprise gives a conclusion on the completeness of the internship program and a characteristic to the student. The characteristic should contain: the level of professional training (taking into account the level of training), the student's responsibility, his interest in acquiring professional knowledge and skills, the degree of independence in performing the task, and other personal qualities shown in the process of practice. The supervisor must evaluate the

student's work during the internship on a five-point system.

The review of the head of the internship from the enterprise is certified by a seal.

A review of the internship supervisor from the graduating department is drawn up during the student's attestation based on the results of the internship.

In addition to the diary, the student draws up a report on educational practice.

Based on the results of the educational practice, the student draws up a technical report of the internship. The report is drawn up on A4 sheets in accordance with the requirements of the ESKD. The volume of the report is 20 - 25 pages.

Structure of the report:

- title page;
- content;
- material collected in practice;
- Bibliography.

The internship report is compiled individually by each student and should reflect the material studied, his practical activities during the internship, and the skills mastered.

Approximate content of the report.

- Introduction (the purpose of the educational practice, the features of its passage, participation in the implementation of real projects).

- Characteristics of the enterprise (history of the creation and development of the enterprise, the place of this enterprise in the unified telecommunication network, organizational structure of the enterprise, the purpose of the main departments, interaction of workshops and services, an approximate scheme of the organization of communications).

- Characteristics of the main telecommunication equipment used at this enterprise (brief description of the transmission system, purpose, composition of equipment, technical characteristics, functional diagram of the terminal station equipment, purpose of the main units).

- Characteristics of auxiliary equipment.

- Plan of equipment placement in the LAC.

- Organization of technical operation in the subdivision (list and purpose of the equipment operation performed, what network monitoring system is used in this section, list of monitored parameters of channels and paths, brief characteristics of control and measurement equipment, methods of checking and adjusting the equipment of channels and transmission paths, etc.).

- List, feature and description of practical work performed by the student during the internship.

- Measures to ensure safety in the unit.

- Enterprise development strategy, main economic indicators, regulatory data.

- Conclusion (results of the educational practice, conclusions and proposals of the student on the internship).

- List of references, technical and regulatory documentation.

The head of the enterprise must check the content of the internship report in order

to check the literacy of its implementation, the admissibility of disclosure of certain information.

9 Attestation based on the results of the internship

For attestation based on the results of the internship, the student is obliged to submit to the graduating department within three days from the beginning of the semester following the internship:

- practice diary, filled out in all sections, certified by seals;
- feedback from the head of the internship from the enterprise on the student's work during the internship period with an assessment of the level of his training in the specialty, attitude to the implementation of the internship program, discipline, etc. (drawn up at the end of the diary, certified by a seal);
- Internship Report.

Certification is carried out by the head of the internship from the graduating department within two weeks from the beginning of the semester in accordance with the schedule.

Certification is carried out based on the results of the interview, on the basis of the diary, the internship report, as well as the feedback of the internship supervisor from the enterprise. Based on the results of the certification, a grade is given according to a five-point system.

A student who has not submitted the documents on educational practice in due time and has not passed the attestation is considered to be underachieving for the semester preceding the internship. Administrative measures are applied to him/her in accordance with the established procedure.

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Further reading

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SOLON-Press, 2016. - 480 p. - Electronic. - The book is in the premium version of EBS IPR BOOKS. - ISBN 5-98003-211-8

3. Menshenin, S. E. Theoretical foundations of electrical engineering. Application of the program "Electronics Workbench" in the calculation of linear electric circuits of direct current: a textbook / S. E. Menshenin. - Theoretical foundations of electrical engineering. The use of the program "Electronics Workbench" in the calculation of linear electric circuits of direct current, The entire term of copyright protection. - Electron. dan. (1 file). - Saratov: IPR Media, 2020. - 60 p. - electronic. - The book is in the premium version of EBS IPR BOOKS. - ISBN 978-5-4497-0415-3

4. Sergeeva, A.S. Basic skills of working with software in a technical university. MS Office Package (Word, Excel, PowerPoint, Visio), Electronic Workbench, MATLAB Electronic resource: textbook / A.S. Sinyavskaya / A.S. Sergeeva. - Novosibirsk : Siberian State University of Telecommunications and Informatics, 2016. - 263 p. - The book is in the basic version of the EBS IPRbooks.

Methodical literature

1. Regulations on Practical Training of Students of the Federal State Autonomous Educational Institution of Higher Education "North Caucasus Federal University". APPROVED BY the decision of the Academic Council of NCFU Protocol No 6 of December 24, 2020.

2. Guidelines for educational introductory practice in 2 parts. - Stavropol: NCFU, 2026. (e. VAR).

4. Internet resources:

- 1 Official site of the Scientific Library of the Federal State Autonomous Educational Institution of Higher Education of NCFU [Electronic resource] // <http://catalog.ncfu.ru/catalog/ncfu>.
- 2 Official site Consultant Plus [electronic resource] // <http://www.consultant.ru>.
- 3 Information and legal portal "Garant" [electronic resource] // <http://www.garant.ru/>
- 4 Scientific Electronic Library eLIBRARY.RU [Electronic resource] // <http://elibrary.ru>.