

## ARTICLE

# METHODICAL AND TECHNOLOGICAL PECULIARITIES (FEATURES) OF 1C SOFTWARE PRODUCTS USING IN THE PREPARATION OF IT PROFESSIONALS AT THE UNIVERSITY

Irina I. Eremina, Alexey G. Isavnin, Anton N. Karamyshev, Izida I. Ishmuradova\*, Denis M. Lysanov

*Naberezhnye Chelny Institute, Kazan Federal University, 68/19 Mira Ave., Naberezhnye Chelny, RUSSIA*

## ABSTRACT

*An evident successful experience of training professionals with knowledge of software products "1C" has been accumulated as a result of long work in the vocational education system and at the Department of Informatics and Mathematical Methods in Economics of Naberezhnye Chelny Institute KFU Economics Division. We cannot formalize, determine and propose it as a universal model yet, but some main ideas are quite interesting and can be applied in other educational institutions.*

## INTRODUCTION

With the development of information society, information technologies (IT), reaching a high level of development, more and more penetrate in all spheres of public life, including education. The problem is not only in the rapid development of IT, but also in IT training [1]. The basic organizational stages of such staff preparation can be divided into four groups:

1. the "1C" company's software product line study in the framework of training programs for bachelors and masters, built in naturally mathematical disciplines and professional unit block courses and electives;
2. students' participation in contests and competitions held by the company "1C";
3. organization and subsequent employment practices in organizations of the company "1C" partner network;
4. The students and professional practitioners informal thematic communication, the organization of workshops, discussions, business games and discussions (the profile shift group "The economic Olympus" in Dubravushka student camp, Grushin Festival arbuzniki (informal meetings) etc.

The main aim of training IT professionals in the training direction 03.09.03 (new code for GEF 3+) "Applied Informatics in Economics" and 38.03.05 "Business Informatics" is competences forming of the in the field of IT, methods and tools for the development and maintenance of information systems for different disciplines on the modern scientific and technical level.

Hardware, software and information resources make IT essentials. The effectiveness of training is largely determined by the sequence of connection and studied theoretical disciplines, supported and added by the courses with a practical orientation. For example junior students get acquainted with the history of IT development, architecture and computer devices and communication systems, they study the theoretical foundations of economic information systems. On the basis of theoretical knowledge and with the economics disciplines study the students are involved in the development of methods and IT tools and aids [2]. Graduate works of students have a practical focus and are often used by some organizations in their work.

The graduation works of IT-direction students are performed and commissioned by the city-forming enterprise "KAMAZ", finance, education, information and communication committees, banks and financial institutions of Naberezhnye Chelny and the Kama region, and many others [3]. The experience of using IT in teaching process can be described by such components, as the technical, software, methodical, personnel and information provision, and students' achievements can illustrate its effectiveness.

## MATERIALS AND METHODS

The initial acquaintance of students with software products "1C" takes place in the first year in the "Computer science and programming" study. Students master the platform interface, programming elements in the "1C". "Education 1C" medium (environment) is actively used here [4].

Studying "Information systems and technologies" in the third year it is considered information, technical, technological and ergonomic provision and support of information systems. The typical configuration of the program "1C: Accounting 8.3." is used at the studies. Classes are held in computer labs using the network

## KEY WORDS

*1C software products, educational-methodological complex, information technologies, cloud technologies, educational practice, internship.*

Received: 27 Aug 2019  
Accepted: 4 Oct 2019  
Published: 8 Oct 2019

## \*Corresponding Author

Email:  
Iishmuradova@kpfu.ru  
Tel.: +7-950-328-31-23

version of the program. The focus on this stage of training is given to the study of the composition and content of directories, originally presented in the program; to the study of details template forms composition of primary documents; the content of the various chronological logs (postings, and other operations) is analyzed.

At the workshops the students learn the entire technological process chain, realized in the user's workplace. The students gain skills performing operations (from the data input to the report output) based on the test case materials. Thus, the practical work of the students is an illustration to the subject "Information technologies of an end-user."

Also in the third year the curriculum provides the discipline "Project Workshop". The students study the program "1C: Accounting 8.3" once again, but the work with the program is held in a different aspect. The educational-methodological complex of the discipline is focused on the program "1C: Accounting 8.3" as the base of technological capabilities and economic programs development. One section is dedicated to working with the program "1C: Accounting 8.3" as the platform "1C: Enterprise 8.2 (3)", which includes the program "1C: Accounting 8.3" is a powerful tool in dealing with the huge number tasks of any organization organizational and economic management [5].

The students learn programming elements in the "1C" acquire configuration skills, gain experience building applications based on the platform "1C: Enterprise 8.3", study the approaches to the implementation of programs "1C" at enterprises of various branches of economy. Another section is devoted to the development of software features "1C: Managing a small firm", which is the propaedeutic of corporate information systems use. At this stage cloud technologies are used actively.

It is a modern concept of IT, which is a distributed set of computing services, applications, access to information and data storage, without requiring the user knowledge of the systems physical location and configuration that provide these services. Training during service <https://edu.1cfresh.com/> is of great help in organizing and conducting classes with students.

In addition, in the third year studying the discipline "Information systems design" a future IT professional in the field of economics, a specialist in finance and management to gains the knowledge about corporate information systems practice, tries his hand in the supervisor position directly during the training, making decisions on which depends the success of an enterprise. This opportunity provides the use of software "1C" - "1C: Manufacturing Enterprise Management" in the educational process.

"1C: Manufacturing Enterprise Management" is a complete solution for business management, developed in accordance with the concept of ERP (Enterprise Resource Planning - Management and Enterprise Resources Planning).

The use of "1C: Manufacturing Enterprise Management" ensures the timely receipt of data required for analysis and decision-making. It focuses on the key business processes; which automation enables the largest financial results.

- financial management;
- production and warehouse logistics;
- Products supply and distribution;
- the enterprise human resources management;
- customer relationship management.

Software product "1C: Manufacturing Enterprise Management" study is aimed at the students' system of interrelated knowledge about the practical application of ERP-solutions development, at the willingness and ability to use them in their work. The widespread use of "1C: Manufacturing Enterprise Management" in Russian, Ukrainian and Kazakh companies is a guarantee of obtained knowledge demand on the part of employers [6].

In the fourth year according to the curriculum the discipline "Information Management" is provided. In the course of its development, the students have the opportunity to work with "1C" company materials. The materials posted on the website of the company "1C" on the Internet, as well as presented in the press. Information of the company "1C" is useful for the students in the preparation of reports, essays and reports on such policy issues as forms and methods of implementation of standard software products; assessment of the advantages and disadvantages of the purchase ready-made standard software products; approaches to the implementation of programs of the family "1C"; the implementation and operation of programs monitoring and many others [7].

## RESULTS AND DISCUSSION

Thus, the students specializing in "Applied Informatics (in the economy)," and "Business Informatics" are provided with the conditions of continuity in the study of specialized "1C" programs in various aspects, taking into account the content of basic education programs

The main direction of the department is to improve the quality of educational services, standardization of teaching and methodological support of all readable disciplines, closer relationship of economic and technological disciplines, developing creativity and initiative of students and postgraduate students, the organization of regular seminars and schools (electives) together with external companies and firms in the following areas:

- IT systems design methods and aids;
- modeling of business processes;
- IT line of IBM products, Microsoft, 1C;
- corporate information systems and technologies (large-scale databases, data warehouses, corporate portals).

The key factors to support modern IT is the preservation and strengthening of material-technical base of computer labs and classes, the further growth of the teaching staff qualification, the creation of teaching aids and materials in the format of websites and e-learning resources of training modules, the work on certification of experts from the number of students, postgraduate students and undergraduates [8].

One of the most effective events on the organization of students practices followed by employment on the base of partner "1C" company network organizations, as shown, was the "The Day of 1C: Career," which is traditionally held in November in many cities of Russia, Ukraine, Kazakhstan, Moldova. In Naberezhnye Chelny the event is held on the basis of a number of universities, including Naberezhnye Chelny Institute KFU since 2007, it's official organizer is the company "Firm LIST" unlimited ( "1C" company's official partner in Naberezhnye Chelny).

Leading companies-partners "1C", well known in the Tatarstan information services market: 1C-Rarus, Intelkom, innovation center STEVE etc, participate in the " The Day of 1C: Career». The directors and leading specialists of partner companies are reporting at the plenary. The reports are focused on the franchising business in Tatarstan, on the production and pre-diploma practice and employment in companies-partners "1C". Also the students and graduates of NCHI KFU in the framework of this event have the opportunity to undergo preferential testing "1C: Professional". For seven years, " The Day 1C: Career" event in NCHI KFU was attended by over 3000 students and graduates.

Of great importance in the preparation of professionals with knowledge of software products "1C" is the participation of students in the Olympiad competition on programming of registration and analytical problems on the platform "1C: Enterprise" and the contest of graduation projects using the software "1C", conducted for several years by "1C" with the participation of regional distributors "1C". We believe that a real help to gain experience for the future professionals of the domestic IT industry and their leaders within the framework of these activities undoubtedly stimulates interest in the study of software products "1C" both by the students and by the teachers and contributes to the further successful employment of graduates.

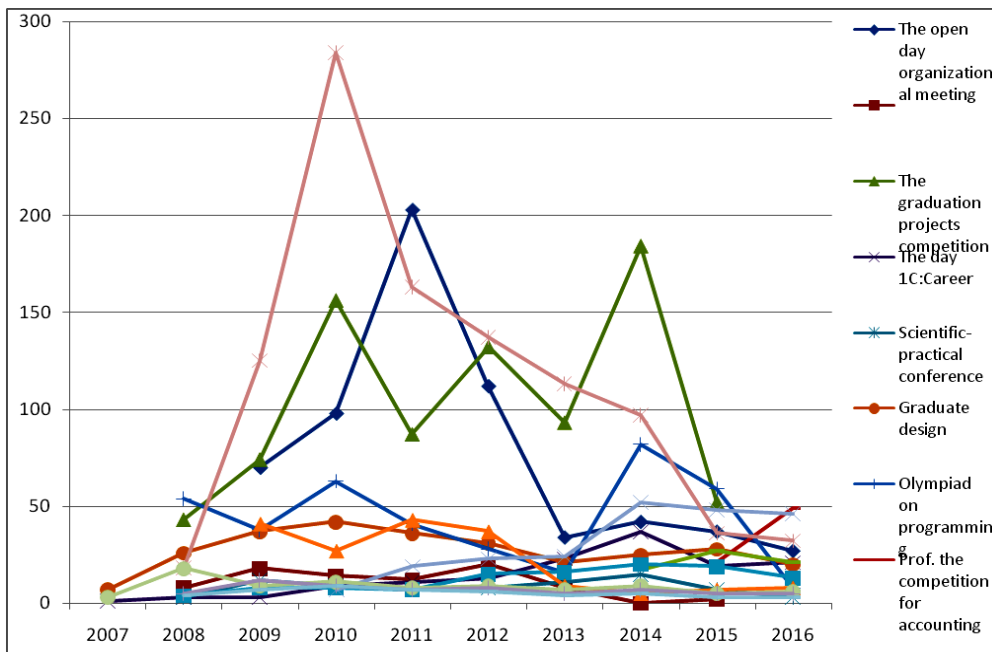
Several years of informal dialogue practice shows that in creative collaboration with students the behavior of teachers is extremely diverse and determined by their individuality [9].

An organized profile shift group of students "The economic Olympus" in the student camp Dubravushka NCHI KFU, as well as the visits to Grushin Festival, Arbuznikovs meetings demonstrated well that the pupil-student is able to see for himself the personal meaning in learning professional skills. Students have the opportunity not only to express their attitude to current events, but also to justify and defend their own opinions. The teacher, professionals, and students are absolutely equal as speech partners, IT professionals, possessing an extensive range of modern IT, engineering skills, which is conducive to the creation of comfortable psychological climate for communication.

We present statistics on participation of students who participated in the events organized with the support of 1C since 2007 [Table-1, Fig 1] [10].

**Table 1:** Statistics of student participation in the activities of 1C (for the period from 2007)

| Timing          | Events                               | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014  | 2015 | 2016 |
|-----------------|--------------------------------------|------|------|------|------|------|------|------|-------|------|------|
| September       | The open day organizational meeting  |      |      | 70   | 98   | 203  | 112  | 34   | 42    | 37   | 27   |
| October         | The graduation projects competition  |      | 8    | 18   | 14   | 12   | 20   | 8    | 7 (8) | 2    |      |
| November        | The day 1C:Career                    |      | 43   | 74   | 156  | 87   | 132  | 93   | 184   | 52   |      |
| January         | Scientific-practical conference      | 1    | 3    | 3    | 9    | 11   | 13   | 23   | 37    | 19   | 21   |
| January-April   | Graduate design                      |      | 3    | 12   | 9    | 7    | 8    | 11   | 15    | 7    | 3    |
| February        | Olympiad on programming              | 7    | 26   | 37   | 42   | 36   | 31   | 21   | 25    | 28   | 20   |
|                 | Prof. the competition for accounting |      | 54   | 38   | 63   | 41   | 28   | 16   | 82    | 59   | 8    |
|                 | Competition ITC                      |      |      |      |      |      |      |      |       | 21   | 49   |
|                 | Olympiad in web programming          |      |      |      |      |      |      |      | 17    | 27   | 21   |
| March           | Week "1C:the Applicant"              |      |      | 321  | 427  | 598  | 783  | 816  | 974   | 872  | 972  |
| April           | The final 1C (Moscow)                |      | 4    | 8    | 8    | 7    | 15   | 16   | 20    | 19   | 13   |
| June            | "1C:Trainee" ("Youth Day")           |      |      | 41   | 27   | 43   | 37   | 9    | 5     | 7    | 8    |
| July            | Grushinsky festival (Samara, Russia) |      |      |      | 7    | 19   | 23   | 24   | 52    | 48   | 46   |
| during the year | Student electives 1C                 |      | 18   | 125  | 284  | 163  | 137  | 113  | 97    | 36   | 32   |
|                 | industrial practice                  | 3    | 18   | 9    | 11   | 8    | 9    | 7    | 9     | 5    | 6    |
| second semester | predegree practice                   |      | 5    | 12   | 9    | 7    | 8    | 5    | 7     | 5    | 5    |
| in July         | Internship (and employment)          |      | 4    | 7    | 9    | 7    | 6    | 4    | 5     | 3    | 3    |



**Fig. 1:** Statistics of student participation in the activities of 1C (for the period from 2007)

With all this diversity the logical center which determines, educates and develops the effects of such cooperation is always the respect for the student personality – that is the sense of equality which distinguishes the subject-subject relationship of the student with a potential employer.

Thus, the future IT professional, a teacher and his specialists- teachers are involved in human culture context, different languages, arts, ways of life in all their originality, which contributes to the completeness and the depth of the compliance with profession, that is, the level of a specialist with significant experience.

## CONCLUSIONS

The demand for IT professionals with skills of business analysts and economic analysis in an environment of modern information systems (IS) is very high. IT equip and reproduce almost all the techniques of financial management, marketing and logistics, rules and regulations of accounting and tax accounting, accounting policy and MSFO and managerial accounting standards. Therefore, the target oriented disciplines disclosing the use of information systems in business management and economic activity in large enterprises are more often included in the bachelor's education curricula nowadays.

Thus, for the education of bachelors in NCHI KFU, specializing in "Applied Computer Science" and "Business Informatics" practical orientation of training is provided with maintaining the necessary theoretical basis. To do this, the main content of training is focused on the best practices of higher education institutions and the requirements of potential employers to the competencies of graduates. The ability to work with the software "1C" expands the range of graduate employment, allows to obtain production skills, which brings confidence and, consequently, increases the professionalism of the future IT specialist and his competitiveness in the labor market.

### CONFLICT OF INTEREST

There is no conflict of interest.

### ACKNOWLEDGEMENTS

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

### FINANCIAL DISCLOSURE

None.

## REFERENCES

- [1] Karamyshev AN. [2017] Analysis of universal methodologies of process management of industrial enterprises. *Astra Salvensis*. 159-166. doi:10.12737/article\_5926a05a1becd8.52369034.
- [2] Makhmutov II, Murtazin IA, Isavnin AG, Karamyshev AN. [2017] Methods and models of outsourcing. *International Journal of Economic Perspectives*. 11(3):1620-1632.
- [3] Karimov SA, Sibaeva GR, Eremina II, Karamyshev AN. Method of introducing the multidimensional concept of authorization SAP BW. *Journal of Advanced Research in Dynamical and Control Systems*. 10(13):536-540.
- [4] Eremina Irina I, Gazizov Ilnaz F. Accounting and analysis of inventories of materials and production of companies. dilemmas contemporaneos-educacion politica y valores. 6. Article no.:86.
- [5] Makhmutov II, Isavnin AG, Karamyshev AN, Sych SA. [2016] Classification approach in determination of knowledge in context of organization. *Academy of Strategic Management Journal*. 15(1):40-46.
- [6] Farkhoutdinov II, Isavnin AG. [2017] Restructuring of Russian enterprises on basis of industrial outsourcing. *Astra Salvensis*. 331-337.
- [7] Ishmuradova II, Lysanov DM, Motova AV. [2018] Mathematical formulation of the problem of the routing of school transport *International Journal of Mechanical and Production Engineering Research and Development (IJMPERD)*. 8(6):1085-1092.
- [8] Miftakhova AR, RSibaeva G, Lysanov DM, Karamyshev AN. [2017] A development of an online monitoring system of the public transport. *Astra Salvensis*. 8(6):1039-1046
- [9] Ishmuradova II, Ishmuradova AM. [2017] Stochastic modeling of economic activity of costs on Innovation of the organization of the Republic of Tatarstan, in the formation of business processes. *Revista Publicando*. 12(1):545-559.
- [10] Ishmuradova II, Karameshev AN, Sultanova AM, Ishmuradova AM. [2018] Design and development of the information system for the support of human resources. *International Journal of Engineering & Technology*. 7(3.27):550-555.