М. М. Бажутина

Интегративное обучение иностранным языкам: разработка планируемых результатов обучения для ИТ-специальностей и направлений подготовки

Введение. Проектирование дескрипторов для достижения задач иноязычного образования на неязыковых направлениях подготовки в вузе на базе имеющихся шкал Общеевропейских компетенций владения иностранным языком (CEFR) способствует продвижению политики культурного многообразия и мультилингвизма, реализуемой Советом Европы. Актуальность исследования заключается в том, что российским вузам не хватает чёткой и прозрачной системы критериев, которые могут быть использованы для планирования и оценки иноязычных компетенций в неязыковом вузе. Цель статьи – представить разработанные шкалы дескрипторов для описания планируемых результатов обучения в ИТ-специальностях и направлениях подготовки в контексте российского высшего образования. Опираясь на федеральные государственные образовательные стандарты высшего образования, владение иностранным языком определяется как интегрированная иноязычная профессионально-коммуникативная компетентность, объединяющая в себе профессиональную и языковую составляющие.

Материалы и методы. В ходе исследования были использованы методы анализа предыдущих исследований, дескрипторов CEFR, интервью с магистрантами и бакалаврами ИТ-специальностей и направлений подготовки (Тольяттинский государственный университет, Россия), анализа иноязычных коммуникативных потребностей в ИТ-индустрии. Полученные данные затем были обработаны с использованием метода обратного проектирования адресных планируемых результатов обучения в формате CEFR.

Результаты исследования. В ходе исследования были выявлены коммуникативные потребности в плане межкультурной коммуникации в ИТ-отрасли и отобраны соответствующие дескрипторы CEFR для их последующей модификации. Выбор формата CEFR был оправдан его высокой адаптивностью и предыдущим успешным опытом разработки подобных дескрипторов для специальностей и направлений подготовки в области автомобилестроения. В разработанной автором шкале для уровней А2, В1 и В2 результаты обучения представлены как дескрипторы для видов речевой деятельности с уровневыми индикаторами из CEFR в сочетании с видами деятельности на рабочем месте в условиях межкультурной коммуникации.

Заключение. Проведённое исследование вносит вклад в разработку и апробацию адекватных наборов дескрипторов на основе CEFR в целях повышения качества университетских рабочих программ по иностранному языку. Предлагаемая шкала дескрипторов имеет определённые ограничения, поэтому намечены дальнейшие направления изучения проблемы.

Ключевые слова: интегрированная иноязычная профессионально-коммуникативная компетентность, планируемые результаты обучения, дескрипторы на базе CEFR, оценка, ИТ-специальности и направления подготовки

Ссылка для цитирования:
Integrated foreign languages teaching: development of learning outcomes for IT majors

**Introduction.** Design of descriptors for achieving objectives of foreign language education in case of non-language majors at tertiary level on the basis of the existing scales of the Common European Competences in Foreign Language (CEFR) promotes the policy of cultural diversity and multilingualism implemented by the Council of Europe. The motivation for the research lies in the fact that Russian universities lack a clear and transparent system of criteria that can be used for planning and assessing foreign language competences for non-language majors. The paper presents a developed scale of descriptors for planning learning outcomes and assessing language proficiency of undergraduate students majoring in information technologies in the context of Russian education at tertiary level. With regard to federal state educational standards for higher education, foreign language competence is described as integrative foreign language professional communicative competence which combines professional and linguistic constituents.

**Materials and methods.** The exploration adopted combined methods of analysis of previous studies, CEFR descriptors, interviews with master and bachelor students of IT majors (Togliatti State University, Russia), and foreign language communicative needs analysis in the IT industry. The obtained data were then processed in the backward design of targeted learning outcomes following the Common European Framework of Reference for Languages format.

**Research results.** The study elicited cross-cultural communicative needs in the industry in question, and then there were selected appropriate CEFR descriptors for their subsequent modification. The choice of the CEFR format was justified by its high adaptability and the author’s previous successful experience of elaborating such scale descriptors for automotive engineering majors. The author designed a scale for A2, B1 and B2 levels, where learning outcomes are presented as descriptors of communicative language activities with CEFR level distinctions being combined with activities involved in on-the-job cross-cultural communication.

**Conclusion.** The initiated research should be helpful to investigate ways of devising and testing adequate sets of CEFR-based descriptors to improve the quality of university syllabi. The proposed scale of descriptors has certain limitations, therefore, further exploration directions are outlined.

**Keywords:** integrative foreign language professional communicative competence, learning outcomes, CEFR-based descriptors, assessment, IT majors

For Reference:
Introduction

Language education is part of the mission of the Council of Europe to achieve greater unity among its members and is aimed at the effective implementation of human rights, promotion and support of a culture of democracy, as reflected in the Council of Europe’s initiative of 2013 (Andorra la Vella, 2013). The teaching of foreign languages and cultures is a way of implementing the European policy of cultural diversity and multilingualism. This initiative has been welcomed by developers of the Common European Framework of Reference for Languages (CEFR) [10]. At the same time, the choice of approaches, methodology, means, and content of foreign language education is determined by its objectives and level.

The latest federal state educational standards of higher education in Russia contain only wordings of the target foreign language (FL) competence, but no system of plausible learning outcomes and components of FL competence for numerous non-language majors has yet been developed. In this situation researchers and practitioners have to work out their own objectives and criteria. This appears to be an obstacle for many university instructors due to some factors: lack of methodological experience, insufficient knowledge of FL communicative needs of graduates of particular majors, employers’ requirements for the competence in question [3; 7]. To solve this problem, the issue of the urgent need for developing a clear and transparent system of learning outcomes was raised by E. N. Solovova [22]. In the context of training future IT specialists, the major challenge is that the IT industry is multinational where a medium of cross-cultural communication is often English. In the meantime, ESP courses (profession-oriented English courses) are taught at universities where at a large scale there is no English-speaking environment. Thus, the context of our research lies in the urgent need for outlining some contours of such a system [5].

We formulated two key questions to guide the present exploration:

1. What factors should be considered in designing learning outcomes? (RQ1)
2. How can we apply CEFR descriptors in representing integrative FL professional communicative competence in the formulation of learning outcomes as a scale of descriptors? (RQ2)

Consequently, the aim of the research is to design a CEFR-based scale of descriptors specifically for IT majors. What we see as the findings of the present research is the realization of the target FL competence in specific learning outcomes formulated as descriptors. This format of learning outcomes will enable FL instructors:

- to set clear and transparent learning outcomes at tertiary level;
- to optimize the process of planning and organizing FL teaching;
- to stimulate students’ engagement in learning integrated FL courses and to help them shape their awareness of learning outcomes.

Literature review

Communicative needs analysis has always been central to university FL courses, especially those designed for non-language students [23; 25]. There is no doubt that it
involves both professional and language content, and lots of approaches and techniques have been implemented and proved their effectiveness over decades. D. D. Belcher [8] argues that major trends include learner-centered approach, content-based instruction, using corpus linguistics and discourse domain. Discourse studies are used by many FL instructors in Russia and abroad to specify the scope of professional communication. For example, M. Ananyeva [1] claims that many university students do not have enough knowledge about target discourse communities and therefore forming this awareness is one of the main objectives of both content and language teaching. T. Nekrasova-Beker et al. [16] focus on discipline-specific vocabulary and its contextual use, which implies working with concepts borrowed from professional disciplines. So, all the above-mentioned clearly indicates that FL teaching at tertiary level should involve integration, and it actually does in many instances.

Closely related to communicative needs analysis is a method of designing curricula. Considering the aim of the study, we stick to the procedure of backward design [18] from communicative needs to specific learning outcomes. The present study also relies on the approach called integrated FL teaching [11; 12], which has a potential of becoming the golden mean between the existing models of integrating professional and linguistic constituents [4]. It is proposed to view the result of this integration as integrative foreign language professional communicative competence which is defined as “a unity of FL communicative skills and professional knowledge, skills and experience selected in scope which is necessary and sufficient for acquiring cross-cultural communication skills in accordance with specific responsibilities in future professional activity and the current level of FL proficiency” (translated by the author – M. B.) [6, p. 23].

Another point of the research methodology covers some relevant issues of how CEFR descriptors and scales are used in FL training at universities. CEFR developers assure that “fundamentally, the CEFR is a tool to assist the planning of curricula, courses and examinations by working backwards from what the users / learners need to be able to do in the language” [10, p. 28]. The review of literature gives examples of implementation and extensive experience of working with the framework as well as advice on developing a context-specific grid [26; 15]. It is worth mentioning various ways of implementing CEFR descriptors: for designing scales and descriptors for separate levels [14; 17], specifying particular levels [9], as well as for elaborating CEFR-aligned assessment tools in the context of teaching FL spoken interaction to law and engineering students [27], and learner-centered self-assessment and reporting procedures [13]. The CEFR itself is used for assessing students’ interactional skills [19] and for the European Language Portfolio which was successfully implemented in Russian engineering universities [3].

**Materials and methods**

This qualitative and designing study was conducted in a normal university environment during the past 3 academic years and adopted combined methods of:

- analysis of various relevant sources (previous research, CEFR descriptors for oral comprehension, production, interaction, and mediation with further specification; selecting relevant CEFR descriptors);
• interviews with 2nd and 3rd year volunteering bachelor and master IT students at Togliatti State University;
• communicative needs analysis which means identifying necessary data from the obtained results of the analysis of relevant sources and interviews;
• backward design [18] which employed modifying selected CEFR descriptors to the actual communicative needs in the IT industry and designing brand new ones specifically to the context of the study.

Utilizing these methods was aimed at designing learning outcomes to reveal the content of the previously elaborated notion of integrative FL professional communicative competence in the context of teaching IT students. The learning outcomes must be relevant to undergraduate IT students’ communicative needs (as well as in the industry) and meet employers’ job requirements. Since planning goes hand in hand with assessing, we settled down to developing descriptors that should become detailed learning outcomes and assessment tools.

Research results

Throughout 2020-2023 there was a process of collecting data and designing descriptors for assessing integrative FL professional communicative competence of students of IT majors. To answer RQ1 we studied thoroughly the following sources for collecting necessary data:

• federal state educational standards for higher education* for the state requirements for FL competence;
• CEFR descriptors for communicative language activities [10, pp. 48-65, 68, 103-105];
• descriptors for communicative and business skills from GSE TeacherToolkit**;
• university syllabi of professional IT disciplines;
• job requirements on recruiting websites***;
• previous studies of FL communicative needs in the IT industry [21].

According to T. V. Sidorenko and O. N. Igna [21, p. 223] typical FL communicative needs in the IT industry are as follows:

• written and oral interaction with customers to clarify the essence of professional objectives;
• knowledge of IT terminology (software, business processes, project management);
• business correspondence;
• business negotiations by telephone;
• communication with foreign developers in the international team on professional topics;
• everyday communication with clients;
• discussing technical tasks, calendar plans, technologies with customers;
• explaining operating principles of systems / devices that are produced by the company;
• explaining problem areas and situations;
• describing major developments and achievements;
• preparing technical documents;

* Available at https://fgosvo.ru/fgosvo/index/24/9
** The Internet resource is not available on the territory of Russia since the spring of 2022.
*** E.g. at https://togliatti.hh.ru/article/30820
• presentation (oral and written) of the company’s activities;
• communication skills for small talk with clients and customers;
• business negotiations;
• oral and written business language for sales (turnover, revenues, business market analysis, etc.);
• reading comprehension of technical documentation.

To this list we added typical cross-cultural communication situations described on specialist and recruiting websites for IT job applicants:
• pair programming, a code review;
• a job interview in the STAR format (situation, task, action, result) including commenting on algorithmic tasks;
• discussion of technical tasks at a meet-up, a stand-up, sprint planning, delivering reports;
• project defense;
• specifying a technical task, solution of controversial situations, calendar plans, technologies with the customer.

We also used results of our interviews in Togliatti State University with a few bachelor students majoring in IT as well a video interview with a vice-rector, an employer (from an international IT company) and a master student*. The purpose of these interviews was to elicit their communicative needs in professional cross-cultural communication. The interviewees were asked common questions about their work experience, cross-cultural communication situations they participated in, language problems they encountered, what FL communicative skills they needed most.

Since English proficiency is a must in the IT industry [20], typical job requirements for it, as declared on recruiting and advertising websites, are B2-C1 levels. All these observations enabled us to conclude that:
• IT companies located in Russia are organisations with constant international connections and foreign enterprises, for example, Netcracker Technology;
• job requirements for proficiency in English are typically the ones that correspond to B1-B2 while desirable levels for employers are also C levels [21].

Taking level A1 as minimum after learning a foreign language at school, A2 was chosen as a starting level of integrative FL professional communicative competence and B levels as the minimal attainable ones in bachelor programmes.

To answer RQ2 we took the CEFR design as a starting point for new scale descriptors. We also used A2, B1 and B2 level namings and adopted some CEFR indicators in descriptors to elaborate learning outcomes specifically for undergraduates of IT majors (see Tables 1-3). The choice of the CEFR design was justified by its high adaptability and the author’s previous experience of devising CEFR-based descriptors for automotive majors [24]. There was also employed the distinction between general professional and specialist professional disciplines which are studied by junior and senior students respectively. This distinction is also justified by the previously introduced and discussed notion of zones of near and further content and competence integration of integrative FL teaching with vocational training [4; 6; 7]. In the context of IT majors, the first zone encompasses A2 and some knowledge of general professional disciplines, while the other zone relates to B levels and specialist professional disciplines.

* Available at https://www.youtube.com/watch?v=9YvkpsPMBds
<table>
<thead>
<tr>
<th>Communicative language activities</th>
<th>Descriptors</th>
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</table>
| **Reading comprehension**         | *Can* choose the type of reading (scanning, skimming, for detail and study) depending on the extralinguistic purpose when working with reference literature, information resources and platforms.  
*Can* satisfactorily understand the main content of scientific and technical texts within the scope of topics of general professional disciplines (e.g. IT, programming languages, types of networks, etc.) if there is an opportunity to reread it and use a dictionary: an abstract of a technical article, simple graphs, bar charts; a business plan, clearly written, straightforward instructions for everyday equipment and software, short, simple user tips in a software interface, requests for proposal, etc.  
*Can* understand content of business letters.  
*Can* scan short scientific and technical texts on general professional disciplines to locate specific information.  
*Can* make basic inferences or predictions about text content from headings, titles or headlines. |
| **Oral comprehension**            | *Can* understand straightforward factual information, directions; main points of spoken statements, messages (while listening to a simple, well-structured and illustrated presentation with visual aids) on a well-known professional topic, provided the speaker’s pronunciation is correct and the pace is relatively slow.  
*Can* understand the main ideas from audio-visual sources of information on a familiar professional topic, provided the speaker’s pronunciation is correct and the pace is relatively slow.  
*Can* understand the interlocutor during a conversation on a well-known professional topic, provided the speaker’s pronunciation is correct and the pace is relatively slow.  
*Can* understand advice and instructions for resolving a problem with a product or piece of equipment, provided the speaker’s pronunciation is correct and the pace is relatively slow. |
| **Oral interaction**              | *Can* talk about their studies at university, hobbies, free time, as well as desires, preferences and interests within the scope of professional topics.  
*Can* participate in a professional dialogue in the “question – answer” mode within familiar general professional topics (e.g. IT, programming languages, information systems, databases, types of networks, software systems, etc.) provided they can ask for repetition.  
*Can* realise their communicative intentions with prior preparation (requesting and passing on information, promises, refusals, expressing opinion, etc.) in accordance with rules of business etiquette in cross-cultural communication (including telecommunications): a simple presentation, a meet-up, a code review using familiar speech patterns.  
*Can* give oral instructions for installing software, hardware, answering the interlocutor’s questions.  
*Can* carry out a work-related phone conversation using polite fixed expressions (passing on information, responding to a request), provided they can ask for repetition and clarifications.  
*Can* realise their communicative intentions in small talk and on a familiar professional topic in accordance with business etiquette (greeting, addressing a colleague, exchange of opinions) without prior preparation. |
| **Oral production**               | *Can* describe a process of installing software, characteristics of hardware, characteristics and purpose of peripherals, taking into account their own experience / previous knowledge within the scope of professional disciplines with prior preparation.  
*Can* give a rehearsed talk or presentation about company’s activities and products in a simple way.  
*Can* describe how and how often a work-related task should be completed. |
| **Written production**            | *Can* fill in a form.  
*Can* write a simple instruction.  
*Can* write a simple business email or a message (including typical abbreviations such as PFA, TBA, TBD, RSVP, etc.) requesting work-related information, responding to requests, business proposals, a letter of thanks, clarification of a task, a client’s or colleague’s problems, etc. using appropriate style and format for sending via telecommunication services.  
*Can* make a brief summary of an information source for a report on a professional topic.  
*Can* write instructions on how to use a device or product. |
### Table 2

#### Learning outcomes at level B1

<table>
<thead>
<tr>
<th>Communicative language activities</th>
<th>Descriptors</th>
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<tbody>
<tr>
<td><strong>Reading comprehension</strong></td>
<td><strong>Descriptors</strong></td>
</tr>
<tr>
<td>Can choose the type of reading (scanning, skimming, for detail and study) depending on the extralinguistic purpose when working with reference literature, information resources and platforms when working with several texts in a foreign language.</td>
<td>Can satisfactorily understand the main content of a research article and its abstract, instructions, regulatory acts (standards, technical requirements, etc.), specifications, requests for proposal, reports within the scope of topics of specialist professional disciplines in applied mathematics, IT and computer sciences) and assess the relevance of each source to professional activity if there is an opportunity to reread it and use a dictionary. Can understand content of official and business letters.</td>
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<td>Can understand straightforward factual information, directions; most of spoken statements, messages (in meetings of a project team, at a lecture, during a conversation, while listening to a report with visual aids) on a familiar professional topic, provided it is clearly articulated in standard language or a familiar variety.</td>
<td>Can understand advice and instructions for resolving a problem with a product or piece of equipment. Can follow most of a clearly structured presentation on a familiar professional topic, provided it is clearly articulated in standard language or a familiar variety. Can understand the main ideas from audio-visual sources of information on a familiar professional topic, when the delivery is relatively slow and clear.</td>
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<td>Can realise their communicative intentions in accordance with rules of business etiquette in cross-cultural communication using telecommunications if necessary: a meet-up, pair programming, a code review, commenting on algorithmic tasks at a job interview, discussion of technical tasks, a meet-up, a stand-up, sprint planning, delivering a report, project defense, specifying a technical task, solution of controversial situations, calendar plans, technologies with the customer using on familiar speech patterns, and answering questions if they can ask for repetition. Can communicate in typical situations of informal communication with colleagues in the industry, provided they can ask for repetition: about their job function, tasks, responsibilities, offer their interlocutor something, participate in small talk. Can participate in a professional dialogue in the &quot;question – answer&quot; mode within familiar specialist professional topics (describe their experience, skills, comment on the actions of a colleague and ask them some necessary questions, describe the scope of the task when working with a code, data, etc.), provided they can ask for repetition. Can put over a point of view clearly, but has difficulty engaging in debate. Can in the case of a job interview at the basic level, describe their skills and their level, describe difficult situations they have been through, motivation and goals for the near future. Can in the case of a job interview at the basic level, structure the story about themselves and work situations using the STAR method (situation, task, action, result). Can realise their communicative intentions in interpersonal communication on a familiar professional topic in accordance with rules of business etiquette (greeting, addressing a colleague, requesting and passing on information, a request, a promise, a refusal, argumentation, expression, explanation of the problem as regards possible solutions, giving brief reasons and explanations) including the use of telecommunication facilities without prior preparation. Can carry out a work-related phone conversation in typical work situations using polite fixed expressions (passing on information, responding to a request for information, etc.), provided they can ask for clarification from time to time.</td>
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<tr>
<td>Oral production</td>
<td>Sustained monologue</td>
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<tr>
<td>Can describe features of software, principles of operation of systems / devices.</td>
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<td>Can describe their actions in the course of a profession-oriented task, taking into account their own experience / previous knowledge within the scope of professional disciplines.</td>
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<tr>
<td>Can give a short, rehearsed talk or presentation of products, developments, technologies, achievements.</td>
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<tr>
<th>Written production</th>
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<tr>
<td>Can write detailed instructions.</td>
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<td>Can write an email, giving details of work-related events, facts, or plans, requesting work-related information, emphasising the most important points.</td>
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<td>Can write an email invitation to a work-related meeting, briefly addressing the reason for the meeting and what will be discussed.</td>
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<td>Can write a résumé (CV), a cover letter for a job application.</td>
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<td>Can write documentation on a request for proposal: a cover letter, a mandatory budget form, an explanation of budget.</td>
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<td>Can write a short, concise on a work-related task or event report explaining how a product / technology works, bug reports.</td>
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<td>Can write a simple project plan with key deliverables.</td>
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<td>Can write a short, concise on description of the problem with the product, code or equipment.</td>
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<td>Can make corrections to a review paper, a research article exploiting various sources of information.</td>
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<tr>
<th>Mediating a text</th>
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<tr>
<td>Can make brief notes from a spoken report, a message.</td>
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<tr>
<td>Can provide written translation (into native language) of specifications, requirements, instructions, an abstract (part) of a research article on a familiar professional topic using a dictionary if necessary. Although minor linguistic errors may occur, translation remains comprehensible.</td>
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<tr>
<th>Oral translation of a written text</th>
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<tr>
<td>Can provide oral translation (into native language) of specifications, requirements, instructions, an abstract (part) of a research article on a familiar professional topic although lexical and grammatical limitations may cause difficulty with formulation at times.</td>
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**Table 3**

**Learning outcomes at level B2**

<table>
<thead>
<tr>
<th>Communicative language activities</th>
<th>Descriptors</th>
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<tbody>
<tr>
<td>Reading comprehension</td>
<td>Can read with a large degree of independence, adapting style and speed of reading to different texts and purposes, and using appropriate reference sources selectively. Has a broad active reading vocabulary, but may experience some difficulty with low-frequency idioms.</td>
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<td>Can scan quickly through several sources (articles, reports, websites, books, etc.) in parallel (standards, technical requirements, specifications, etc.), requests for proposal, reports on a familiar professional topic and assess the relevance of each source to professional activity and can identify the relevance and usefulness of particular sections for the task at hand.</td>
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<td></td>
<td>Can quickly identify the content and relevance of news items, articles and reports on a wide range of professional topics with complex diagrams and visual information (specialist professional disciplines in applied mathematics, IT and computer sciences), deciding whether closer study is worthwhile.</td>
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<td>Can scan quickly through long and complex texts, locating relevant details (e.g. detailed official and business letters, contracts).</td>
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<td>Can understand lengthy, complex instructions in their field, including details on conditions and warnings, provided they can reread difficult sections.</td>
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<td>Can use a variety of strategies to achieve comprehension, including watching out for main points and checking comprehension by using contextual clues.</td>
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<tr>
<th>Oral comprehension</th>
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<td></td>
<td>Can understand the main ideas of propositionally and linguistically complex discourse on both concrete and abstract topics in meetings of a project team, during a conversation, at a lecture, while listening to a report, most of a clearly structured presentation on a familiar professional topic, live or broadcast, delivered with visual aids in standard language, regardless of the speaker’s accent and pace, though some difficulties may occur.</td>
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<td>Can follow extended discourse and complex lines of argument, provided the topic is reasonably familiar, and the direction of the argument is signposted by explicit markers.</td>
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<td></td>
<td>Can with some effort catch much of what is said around them, but may find it difficult to participate effectively in discussion with several users of the target language who do not modify their language in any way.</td>
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<td></td>
<td>Can understand advice and instructions for resolving a problem with a product or piece of equipment.</td>
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<tr>
<td></td>
<td>Can understand audio-visual sources of information on a familiar professional topic regardless of the speaker’s accent and pace, though some difficulties may occur.</td>
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</table>
## Oral interaction
**Can** communicate spontaneously with good grammatical control without much sign of having to restrict what they want to say, adopting a level of formality appropriate to the circumstances in cross-cultural communication using telecommunications if necessary: pair programming, a code review, commenting on algorithmic tasks at a job interview, discussion of technical tasks, in meetings (a meet-up, a stand-up, sprint planning, a report, a project defense), specifying a technical task, solution of controversial situations, discussing calendar plans, technologies with the customer including the use of telecommunication facilities. **Can** participate in a professional dialogue and establish a relationship with interlocutors through sympathetic questioning and expressions of agreement plus, if appropriate, comments about third parties or shared conditions. **Can** indicate reservations and reluctance, state conditions when agreeing to requests or granting permission, and ask for understanding of their own position. **Can** use appropriate technical terminology when exchanging information or discussing their area of specialisation with other specialists. **Can**, in the case of a job interview, describe easily their skills and their level, difficult situations they have been through, motivation and goals for the near future. **Can** easily structure the story about themselves and work situations using the STAR method (situation, task, action, result). **Can** outline an issue or a problem clearly, speculating about causes or consequences, and weighing advantages and disadvantages of different approaches. **Can** participate in an extended work-related phone conversation in typical work situations using polite fixed expressions: passing on information, responding to a request for information, etc.

## Oral production
**Sustained monologue**
**Can** give clear, systematically developed descriptions with appropriate highlighting of significant points and relevant supporting details, taking into account their own experience / previous knowledge within the scope of specialist professional disciplines. **Can** describe their actions in the course of a profession-oriented task. **Can** give clear, detailed presentations on a wide range of subjects related to their job function (products, developments, technologies, achievements, etc.) with appropriate highlighting of significant points and relevant supporting details.

## Written production
**Can** produce a detailed description of a complex process. **Can** write an email on various business issues developing an argument, giving reasons in support of or against a particular point of view and explaining the advantages and disadvantages of various options. **Can** write a detailed résumé (CV) and cover letter for a job application. **Can** write documentation on a request for proposal: a cover letter, a mandatory budget form, an explanation of budget; bug reports. **Can** write an abstract for their research article, bachelor’s thesis. **Can** write some additions and make corrections to a review paper, a research article synthesising information and arguments from a number of sources. **Can** write a detailed project plan with key deliverables. **Can** write a detailed report explaining how a product / technology works, on a work-related task or event and developing an argument systematically with appropriate highlighting of significant points and relevant supporting details. **Can** write a detailed description of the problem with the product, code or equipment.

## Mediating a text
**Note-taking and written translation of a written text**
**Can** take accurate notes in business meetings and seminars. **Can** provide accurate written translation (into native language) of specifications, requirements, instructions, an abstract (part) of a research article on a familiar professional topic using a dictionary if necessary.

## Oral translation of a written text
**Can** provide oral translation (into native language) of specifications, requirements, instructions, an abstract (part) of a research article on a familiar professional topic without much difficulty.
The developed scale descriptors of the described communicative language activities correlate with typical communication situations discovered by T. V. Sidorenko and O. N. Igna [21] and from other sources from specialist websites. Level indicators for all the communicative language activities are exactly the same as in the corresponding CEFR ones [10]. This enabled us to stick to the level distinctions and keep the whole scale as consistent as possible. In this regard, we admit that some alterations and improvements might follow because the elaborated descriptor scale needs further testing as it is normally done with all CEFR scales after being published to the general public.

The findings of the study agree with other attempts to introduce descriptors for assessing foreign language competences in Russian universities. For instance, O. V. Baryshnikova [2] and her thesis advisor N. F. Koryakovtseva [12] elaborated a scale comprising descriptors for levels A1, A2 and B1 for engineering and science students in general. But the descriptors of this scale are not based on the CEFR types of descriptors, and, as the authors admit, they need further specification for designing curricula for specific engineering majors [12, p. 15]. Two-level self-assessment grids, similar to the CEFR design, were worked out and tested by O. Kh. Miroshnikova [14] in teaching bachelor and master students majoring in physics and by T. Yu. Polyakova [17] in teaching foreign languages to engineering majors. Overall, such attempts prove the need for implementing scales of descriptors in Russian higher education, and the pattern of CEFR-based descriptor scales, as the present study suggests, is very much appropriate. In addition, devising such scales for particular majors might become the first step to diversification of foreign language education at tertiary level, which was described and implemented by T. Yu. Polyakova [17], and not only in the Russian context.

This study contributes to elaborating CEFR-based descriptors for planning learning outcomes and assessment tools in the case of teaching undergraduate students majoring in information technologies. A solution to the problem of designing learning outcomes and their format was suggested. Considering the essential factors produced a distinct framework for FL teaching and learning as well as assessment in the context of university IT majors. This optimal framework for developing ESP courses was devised in compliance with federal educational standards at the bachelor and specialist levels, and it may serve a good foundation for further diversification and lifelong education. The proposed scale of descriptors is ready for implementing into any curricula in the context of Russian education at tertiary level.

A number of limitations in this study should be considered. First, although B levels of FL competence are sufficient for universities with two or three years of teaching ESP courses, a higher level is attainable after completing 4-year ESP courses in bachelor and master programs. In this regard, the proposed descriptors need to be accompanied by level C1 because of the need to design learning outcomes for advanced learners in the professional context. Second, the proposed scale of descriptors contains only communicative language activities so far, and it is necessary to work out descriptors for assessing other language competences. Therefore, the initiated research should be helpful to investigate ways of elaborating and testing adequate sets of CEFR-based descriptors to improve the quality of university syllabi.
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