

the alloy is 31%, a solid solution based on Cr is formed, thus chromium ceases to dissolve in nickel.

Tungsten does not affect the temperature of dissolution (precipitation) of carbides $M_{23}C_6$, it is at the level of 1280 °C. An increase in the concentration of tungsten in the alloy leads to a change in the content of alloying elements in the carbides of this system. Nickel and molybdenum content decreases to 2.7 and 4.4%, respectively, and tungsten content increases to 18%.

Thus, the calculated data for determining the type and chemical composition of carbides showed good convergence and agreement with the experimental data obtained by electron microscopy.

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LANGUAGE SKILLS THAT ARE FUNDAMENTAL REQUIREMENTS FOR ENGINEERING UNDERGRADUATE STUDENTS AT A TECHNICAL UNIVERSITY

The XXI century represents the era of globalization and growing developments and up-to-date achievements in all spheres of the life of society. People around the world feel the necessity to respond modern demands and be ready to adapt to new work and social environments, which are offered to them due to current innovations. Every person wants to be an active member of the society and have the right to choose and develop his/her career to satisfy the basic needs. Thus, all these factors say about the importance to develop in students both professional and language skills at the same level. Being equipped with professional knowledge means be able to solve a great number of tasks at the work place. However, in order to be a successful employee you need to have good communication skills, which give a person an opportunity to convey information to people clearly and simply, in a way that means things are understood and get done.

Konar N. suggests, “In today’s competitive and globalized world, communication has become an essential tool for everyone – be they students, academics or professionals. For technocrats and professionals, it becomes all the more necessary to acquire good communication skills as they have to communicate, effectively with all their business and professional colleagues” [4].

Today it is quite evident that everyone should know at least one foreign language in order to provide effective communicative with others and create healthy working relationships. In this context, we would like to focus on the importance of foreign language knowledge for further career promotion. English plays a role of an international language for communication in all countries around the world. It goes without a doubt that in a modern world you should have a knowledge of a foreign language to achieve your professional and individual goals.

Reimer M.J. stated that “English serves as a window of intellectual and cultural ventilation for the people and it enables them to peep out through it into the vast material, scientific and technological prosperity that our advanced distant neighbor countries have attained in the recent days and adopt their techniques to lead our nation to her ultimate goal” [5].

Students who study engineering at university have a wide range of possibilities to use their knowledge of English as the language of international scientific community to advance their professional growth in the career. In order to solve working tasks a lot of professionals choose English as the language for communication and share information about advanced achievements and developments in the field of engineering.

Teaching English to engineers is a delicate and demanding matter in terms of content, methods and techniques, and deciding which are appropriate for this particular area of engineering and English. That is, the aim in such an interdisciplinary course is to develop and master relevant communication and professional skills, using English as a means and a kind of mediator in shaping future engineers [1].

Taking in account the goals of preparation of future engineers for their work for international enterprises in the current globalized environment, it is very important to center teaching / studying processes on the development of oral communication skills,

which include formal/ informal conversations, business conversations and speeches. These are common at work because engineers have to constantly interact with coworkers, managers and stakeholders such as clients and customers.

Features of successful professional communication. Since communication matters a lot in the professional world, it is quite important for us to get acquainted with the most important features of successful professional communication:

- communication is a two-way process by which information is transmitted between individuals and/or organizations so that an understanding may develop among them;
- communication is a continuous process of meaningful interactions among persons in an organization that results in meanings being perceived and understood in a desired way;
- the role of the receiver and the sender keeps changing in the entire communication activity;
- communication broadly includes both verbal and non-verbal forms. Therefore, it also includes lip reading, finger-spelling, sign language, and body language used in face-to-face communication;
- it is a process which transmits and disseminates important ideas, thoughts, feelings, plans, etc.;
- communication skills are generally understood to be an art or technique of persuasion through the use of oral, written, and non-verbal features [2].

The curriculum of the course must guarantee the development and improvement of oral communication skills in graduate students with the aim of their further implementation at a work place.

In addition, effective writing in the field of engineering is essential for engineers who are producing technical documentation, project manuals, standard operating procedures, project proposals, and interdepartmental communications. Civil engineers need the technical expertise and written capability to convey detailed engineering concepts to non-technical personnel, as well as to produce documentation that conveys the technical aspects of a project or product.

Engineers are responsible for understanding the fundamentals of their field, yet it is important that they understand and perfect the various types of writing for engineers. These can include the following:

- proposals;
- inspection reports;
- research reports;
- specifications;
- progress reports.

A professional engineer should be able to work with these types of writing documentations doing their working tasks. The obtained skills in different types of writing which the engineers can use will equip them with those abilities, which allow them to work effectively, and with more benefits in a modern society.

Graphics communications using engineering drawings and models is a language – a clear, precise language – with definite rules that must be mastered if you are to be successful in engineering design. Once you know the language of graphics communications, it will influence the way you think, the way you approach problems. Why? Because humans tend to think using the languages they know. Thinking in the language of technical graphics, you will visualize problems more clearly and will use graphic images to find solutions with greater

Just as the graphics language has evolved over the years into a sophisticated set of standards and conventions, so have the tools used to graphically communicate technical ideas. Tools are used to produce three basic types of drawings: freehand sketches, instrument drawings, and computer drawings and models.

In the conclusion, it should be mentioned that similar to the finding suggested by Clement and Murugavel, it can be postulated that there should be consistency among the objectives of English courses at the preparatory program curriculum, language teaching methodologies, and the priorities of the faculty regarding classroom practices employed in the content area courses, which can also serve the purpose for completing English tasks at the workplace [3].

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ДОСЛІДЖЕННЯ ВПЛИВУ ПАРАМЕТРІВ ДРУКУ ПОЛІВ ШАХМАТНОГО ПОРЯДКУ З ЖАРОМІЦНОГО СПЛАВУ INCONEL 718 ЗА ТЕХНОЛОГІЄЮ СЛП

Застосування сучасної технології СЛП дозволить суттєво скоротити час виготовлення та реалізувати складну геометрію, що вимагає значних ресурсів при виготовленні за традиційними технологіями, а в деяких випадках неможливе (криволінійні внутрішні канали, замкнуті внутрішні порожнини).

Встановлено раціональні значення основних параметрів виготовлення металовиробів/деталей за технологією селективного лазерного плавлення з жароміцного сплаву Inconel 718 на установці Alfa-150D виробництва компанії ТОВ «Аддитивні Лазерні Технології України». Дана робота спрямована на полів у шаховому