**AL-FARABI KAZAKH NATIONAL UNIVERSITY**

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ENGLISH FOR MASTER’S DEGREE FOR THE FACULTIES OF MECHANICS-MATHEMATICS AND INFORMATION TECHNOLOGY

***Educational-methodical manual***

**Almaty**

**«Qazaq University»**

2018

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UDC 811.111.

LBC 81.2 Ahгji-923

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*Recommended by the Scientific Council of the Faculty of Philology’ and World Languages Editorial and Publishing Council of Al-Farabi Kazakh National University (Protocol N°7 dated 05.07.2018)*

**Reviewed by**

candidate of Philological sciences, associated professor/. G. Orazbekova

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A 30 English for master’s degree for the faculties of Mechanics-Mathematics and Information technology: educational- methodical manual / U.B. Adilbayeva - Almaty: Qazaq University, 2018.-128 p.

**ISBN 978-601-04-3618-3**

The educational-methodical manual is prepared at the Department of Foreign Languages of the Faculty of Philology and World Languages of KazNU. This manual is intended for undergraduates of faculties of mechanical-mathematical and information technology. The purpose of the manual is to develop the skills of translating original scientific and technical texts, to expand the vocabulary, based on the available basic knowledge, to form the competence necessary for the implementation of professional and scientific purposes. The educational and methodical manual is divided structurally into 20 lessons. Each of them presents assignments for independent work for the development of communicative competence with evaluation criteria. A scientific vocabulary and terminology useful expressions for annotations, presentations are given in the appendix.

Published in authorial release.

**UDC 811.111.**

**LBC 81.2 Англ-923**

**ISBN 978-601 -04-3618-3 ©Adilbayeva U.B. 2018**

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**ПРЕДИСЛОВИЕ**

Учебно-методическое пособие подготовлено на кафедре иностранных языков факультета филологии и мировых языков Казахского национального университета им. аль-Фараби и предназначено для магистрантов механико-математического факультета 1 года обучения.

Целью данного пособия является развитие навыков и умений письменного перевода с английского языка на русский оригинальных научно-технических текстов, расширение словарной базы, на основе имеющихся базовых знаний по английскому языку сформировать компетенции, необходимые для осуществления профессиональных и научных целей. Учебно-методическое пособие разделено структурно на 20 уроков, в каждом из которых, помимо текста, представлен комплекс упражнений и тексты по специальности магистратуры, выполнение которых способствует лучшему усвоению прочитанного материала и свободному владению новой лексикой.

Пособие построено на междисциплинарной основе и современных методических принципах, содержит общеобразовательные, научные, научно-популярные, а также комплексы упражнений и заданий для развития навыков устной и письменной речи на английском языке. Тематическое содержание соответствует программе по иностранному языку (профессиональный) для магистрантов специальностей факультетов механики-математики и информационных технологий.

Учебно-методическое пособие состоит из 128 страниц. Каждый раздел данного учебного пособия включает в себя упражнения по переводу, устной практике, усвоению активной лексики, тексты для изучающего и просмотрового чтения и последующего анализа. Так же включены задания для самостоятельной работы и их критерий оценки. В приложениях даны научный словарь, термины, полезные выражения для аннотации, презентации, задания на СРМ и образцы Power Point презентации для самостоятельной работы магистрантов и т.д.

**GENERAL – EDUCATIONAL TEXTS**

**PART 1.**

**English as the international language**

The advantages of researchers knowing the English language are plentiful. The world is becoming interactively smaller each year. The introduction of radio, television, airplanes, computers, the Internet have made cross cultural and cross intellectual interactions easier to accomplish over great distances. Advanced technologies continue to make interactions faster, easier, and more efficient between different countries.

The English language has been selected as the international language without our input. It is a fact that we are faced with and knowing that interactions between countries will increase we must choose to be a part of these interactions or choose to be isolated from the opportunities within these interactions. Language, like computers, benefit from a common standard which information can be exchanged quickly and accurately. Certainly we can wait for translations and business and technology changes, we are compelled to realize that opportunities will be missed.

As mentioned earlier the Internet is making interactions and information exchanges easier to accomplish. English is currently being used as the primary medium, with which different countries can communicate. With the uncertainty of economic situations, the advancement of new interactive technologies such as video conferencing and the need to keep pace with a changing world environment the Internet is becoming a common communication platform.

As was the case in the 1970’s and 1980’s the computer became a tool of science and business. Many people in Western environments resisted the computer insisting that business can continue using the old technologies. Certainly they were correct in the short term. But now, the computer has influenced all facets of business as the benefits of the computer have become more apparent. Similar to the computer, a common language will also become a necessary tool in doing science and business in a shrinking world. It is our responsibility to embrace and promote the language tool for new researchers in order for them to be prepared to function in an ever changing world.

**1. Comprehension check**

1. What are the advantages of researchers knowing the English language?

2. What should research scientists master the English language for?

3. Why is common standard necessary?

4. What technologies are becoming common communication platforms nowadays?

5. What is the Universities’ responsibility as far as “the language tool” is concerned.

**2. Speech Practice**

1. Speak about the necessity of the common language for international research exchange.

2. Say what helps you master the every-day scientific English.

3. Express your opinion of language compared to technology.

**Task:** Prepare Power Point presentation. Masters’ individual study (MIS)-l: “My learning style”.

**MIS-1 “My learning style”**

**Aim:** to develop Study Skills through English, to increase the stu­dents’ awareness about their learning styles.

**Introduction:** Students learn in many ways, like seeing, hearing, and experiencing things first hand. But for most students, one of these methods stands out. Research has shown that students can perform better on tests if they change study habits to fit their own personal learning styles.

A simple explanation of learning styles is this: some students remember best materials they’ve seen, some remember things they’ve heard, while others remember things they’ve experienced.

**Instructions:**

1. Research your own learning style. There are lots of theories on how we learn. Find in Internet the information on Kolb’s learning cycle, Honey & Mumford learning style model, Gardner’s Multiple Intelligences and VAK Learning Styles. Take notes completing the table below.

|  |  |
| --- | --- |
| **Theory** | **Notes** |
| Kolb’s learning cycle |  |
| Honey & Mumford |  |
| Gardner’s Multiple Intelligences |  |
| VAK |  |

2. Reflect on the results (not more than 300 words overall):

|  |
| --- |
| Which model, in your opinion, best reflects how you learn? |
| Write about a positive or successful learning experience of your own. Did you employ any of your preferred learning styles? |
| Consider a negative or unsuccessful learning experience. Did the course (or teacher) cater for your learning style? To what extent could your lack of success be due to this? |

3. Use any materials available in libraries and internet. Do not forget to make a list of references.

4. Prepare a presentation based on your research findings. The presentation can be made in pairs or individually.

5. Presenters will be given 5-6 minutes to report to the whole class.

6. Students in the class are welcome to ask questions and involve in the discussion related to the topic under study.

**Tips:** Learning style is best described in terms of: Visual learners, Auditory Learner, Kinesthetic Learner

The presentation weighs **10** points maximum.

**EVALUATION CRITERIA:**

|  |  |  |
| --- | --- | --- |
| MIS-1 «My learning style»  Assessment scale | Number of points | |
| Max | Yours |
| Content / critical analysis of learning style | 3 |  |
| Language accuracy / organization, wide vocabulary, versatile grammar, intelligible pronunciation, fluency | 2 |  |
| Visual support / graphs, charts, logo, letterhead, pictures, photos where possible | 2 |  |
| List of references | 1 |  |
| Time management, body language, interaction with audience and overall impression | 2 |  |
| Overall | 10 |  |

**KazNU al Farabi - AS A LEADING CENTER FOR RESEARCH AND EDUCATION**

Al-Farabi Kazakh National University is a leading institution of higher education in Kazakhstan, which was the first to pass the state certification and which has justified its right to realize academic activity on all specialties and at all levels.

Nowadays, KazNU is one of the leading universities in Kazakhstan and an important scientific center. In connection with declaration of independence of the Republic of Kazakhstan a name of the great scientist, the great thinker and scholar, «the Second teacher» of the East - Abu nasr al- Farabi was assigned to the Kazakh state university on October, 23rd, 1991.

Al-Farabi KazNU was the first laureate in the history of the country of the Presidential award of the Republic of Kazakhstan “For achievements in the area of quality”, a laureate of the Award of the CIS for achievements in the area of quality and services. By being a member of the International Association of universities and the Co-founder of the Eurasian Association of universities, KazNU was the first among the universities of Kazakhstan and countries of Central Asia which has signed the Great Charter of Universities in Bologna; it has successfully passed the international certification on the correspondence to the system of quality management (SQM), the requirements of international standards ISO 9000:2000. In addition, KazNU has obtained the certifications from the largest global certification centers – the International Certification System IQNET.

The University has an enormous educational, scientific, spiritually educational, innovative and production potential which are aimed at training of specialists of the highest qualification, further integration into the global educational space, development of fundamental and applied research, their implementation into production. Today al-Farabi KazNU offers to students a wide range of specialties. Particularly, the university has been paying much attention to theoretical and applied research in the field of engineering.

The university consists of 15 fully functioning faculties, 63 departments, 20 scientific research institutes and centers, a techno-park; more than 2000 professors, doctors, scientific candidates and PhD’s, more than 100 academicians of the largest academies, about 30 honored figures of the Republic of Kazakhstan, more than 30 laureates of State and nominal awards of RK and 40 laureates of the young scientists’ awards, 45 fellows of state scientific fellowships. More than 18000 undergraduate and master’s degree students at the multilevel system of higher professional education are studying at the university. These more than 20,000 students are studying in 180 specialties of bachelor, master’s and doctoral studies. The process of training specialists is based on the competence approach, interdisciplinary and problem-oriented training. KazNU cooperates with 418 largest international universities of the world on the realization of joint international educational programs, exchange programs for students and internship.

**1. Vocabulary list**

applied прикладной

leading ведущий

school of thought (on) научная школа

maintain поддерживать

joint общий, совместный

participate in участвовать

target program целевая программа

carry out projects выполнять проекты

facilitate способствовать

humanities гуманитарные науки

bring up воспитывать

generation поколение

Master’s program программа магистерской подготовки

research-oriented program программа, ориентированная на научные исследования

**2. Comprehension check**

1. Name some of the KazNU schools of thought emphasizing those you know about.

2. What kind of contribution are the young researchers expected to make to the development of science? Will they be involved in qualitatively new areas of research?

3. Why do you think so much attention is paid to the English language study at present?

4. What facts prove that KazNU is actively involved in international research cooperation?

**Speech Practice**

Characterize KazNU as a leading research center putting special emphasis on educating young researchers and international research contacts.

**The Faculty of Mechanics and Mathematics**

The faculty was founded in 1934 and was recognized as the first physics and mathematics faculty in Kazakhstan. During the years the faculty became the cradle of education and one of the national Centers in the field of mechanics and mathematics. This historical mission is relevant for the faculty and now. The faculty passes all tests with honor and remains one of the leading centers of scientific research and training in mathematics, mechanics and information technologies in the country. The faculty is constantly evolving. In recent years there has been a steady growth in the number of students.

The number of scientific Investigative programs, new courses are being created on the most relevant areas of training specialists such material base Faculty. This faculty allows students receive a fundamental education and immerse themselves in scientific research in their chosen areas of modern mathematics, mechanics and computer science. Achievements of the faculty today became possible thanks to the enthusiasm and creativity of several generations of scientists who worked and worked today at the faculty. Stages of the development of mathematics and mechanics as a science in Kazakhstan are associated with the names of many scientists who left a notable mark in the history of the faculty. The reality of the modern world require from us to keep pace with the times and further improve the educational process of our faculty. Acquired fundamental knowledge allows graduates of the Faculty of Mechanics and Mathematics of KazNU to learn new skills, abilities in a timely and qualitative way, therefore they are always in demand on the labor market of our country.

The staff of the Faculty of Mechanics and Mathematics has huge plans to improve the learning process and further improve the effectiveness of scientific research in accordance with the requirements of the time. The faculty has sufficient potential to successfully implement the new developed programmes. We believe that Mechanics and Mathematics Faculty will always hold its banner higher and will remain forever not only in Kazakhstan, but in a whole world. As a teaching staff we are always glad to see at our faculty purposeful, active and ambitious young people, aimed at obtaining a better education, open to new knowledge and a full dialogue. We are convinced that the scientific and practical achievements of the faculty will find their real embodiment in you, our future students, and will open excellent career prospects for graduates of the Faculty of Mechanics and Mathematics of KazNU named after Al-Farabi.

There are four departments at the Faculty:

* Department of Mathematical and Computer Modeling
* Department of Mechanics
  + Department of differential equations and control theory
* Department of Fundamental mathematics

**Educational Programmes**

The Faculty of Mechanics and Mathematics carries out academic training and teaching in the following specialities:

Master’s degree:

6M060100 Math

6M060100 Mathematics (NII)

6M070500 Mathematical modeling and computer simulation (Institute)

6M070500 Mathematical and computer modeling

6M060300 Mechanics

**2. Comprehension check**

Look through the text. Find the following facts and figures:

Number of graduates (зд. graduates выпускники)

Number of academic staff

Number of Cand. Sc. and D. Sc. degree holders

Total number of graduate students

Number of postdoctoral students

**Speech Practice**

Study the information about research directions offered by KazNU graduate school.

Explain why you have chosen the field you are studying and researching into.

**Master’s programmes at KAZNU**

Among with the first universities in Central Asia Kazakh National University named after al-Farabi joined the Great Charter of Universities and completely transited to a modern three-tier system of training “Bachelor-Master - Doctorate PhD”. Master’s degree first was established as an academic programme in 1996. Today university traines more than 10,000 masters in more than 84 specialties every year.

Educational programs of the KazNU master degree are implemented in two directions: scientific-pedagogical and specialized. It provides with specialized training that enables graduates to engage successfully in scientific, educational, administrative and expert activities.

Implementation of educational programs of Master degree is realized in close cooperation with leading foreign educational and scientific organizations. Master degree students have an opportunity to attend lectures of visiting professors from foreign countries. Extensive international relations of the university create all required conditions for undergraduates of KazNU to travel for training and internships in foreign universities and research centers.

Five specialized Master degree Educational programmes in different directions at KazNU accredited by international agency «ASIIN» (Germany). There are groups with English teaching.

Since the 2010-2011 academic year students of Master degree can earn their degree by joint Master programs at Universities of SCO countries, the CIS countries and in other foreign universities.

Al-Farabi Kazakh National University offers master’s programs on 86 specialties (subject areas) of professional and research-oriented education. Lately programs of business education (MBA), double degree programs based on bilateral agreements, programs of the CIS Network University, SCO Network University and other specialized programs have been introduced.

If you want to get a master diploma in information technology, but you do not have a bachelor’s degree in this field, there are variety of options available possibility. That is Master’s degrees in Informatics as a Second Competence. Master’s degrees in Informatics as a Second Competence (Specialization of Master’s degree in Information Systems) Admission is open for two directions: scientific-pedagogical and professional. Who can enter this master degree:

* Bachelor from all fields except Informatics and Information Systems;
* Masters from all fields except Informatics and Information Systems (paid education only);
* People with higher education who work in areas related to development of information technologies or of information technologies services.

Master educational programme “Informatics as a second competence” includes basic disciplines such as: Algorithms and Data Structures, Programming, Network and Operating Systems, Development of Web-Systems; and professional disciplines such as: Software Development Technologies, Project Management, Design of Mobile Applications, Digital Media, Multimedia documents.

This master’s degree educational programme also gives an opportunity of obtaining a double diploma with Pierre Mendes-France University, Grenoble, France. Specialized direction of this master’s programme is funded by the University.

Diploma of the master’s programme allows to work in all sectors of economy and production, except for teaching at universities.

**1. Vocabulary list**

|  |  |
| --- | --- |
| graduate school (Am E) / (post)  graduate studies (Br E) | аспирантура; в университетах  Запада магистерские программы являются  частью (первой ступенью) аспирантуры |
| confer / award / grant a degree | присуждать степень |
| defend dissertation (Am E) | защищать диссертацию |
| supervisor of studies / thesis adviser /  dissertation adviser / (research) adviser | научный руководитель |
| professionally qualified / certified specialists | дипломированные специалисты |
| enroll(l) in | вносить в списки (учащихся); записываться, зачисляться |
| competition | конкурс |
| admit | принимать |
| admission | прием |
| master student | магистрант |
| required | зд. обязательный, e.g. required courses обязательные учебные курсы / дисциплины |
| research degree | научная степень |
| undergraduate student | студент программы бакалавриата |
| Under the supervision of | под руководством |
| master’s thesis (Am E) | магистерская диссертация |
| master’s thesis defense (Am E) | защита магистерской диссертации |
| Master of science (M. Sc. (Br E) /  M. S. (Am E)) | Магистр (естественных или точных наук) |

**2. Comprehension check**

1. When did KazNU open its first master-level degree programs?

2. What are the two types of master-level degree programs offered by the University?

3. When were the first Master’s programs graduates awarded their M.S. degrees?

4. How many fields does KazNU offer its Master’s programs in?

5. What are the characteristic features of M.S. programs at KazNU?

6. How much time is required to complete a Master’s program?

7. What is the University aiming at launching its Master’s program?

8. May the M.S. degree at KazNU be earned without a master’s thesis?

9. What kind of degree work is the Master’s thesis? Should it be an original and interesting contribution to the field?

10. Why do you think an oral thesis defense is required?

11. How much time is required to complete a Master’s program at KazNU? What parts is the program composed of?

12. What career opportunities do the graduates from the Master’s programs have? Which of the alternatives is better in your opinion?

**3. Speech Practice**

Speak about Master’s programs at KazNU putting special emphasis on the historical background, programs structure and graduate requirements.

Describe the procedure of applying for admission to the Master’s programs at KazNU.

**Masters’ Degrees abroad**

**Master’s Degrees in Canada**

Not to be outdone by its famous neighbour, Canada is one of the world’s top study abroad destinations. A Masters in Canada means studying in spectacular settings at some of North America’s most successful universities.

The Canadian higher education system is also one of the most prestigious in the western world, with several renowned research universities and a range of specialised institutions. Investment in Canadian universities is also amongst the highest in the developed world, with local provincial governments possessing the freedom to support the individual strengths of their local university systems.

There’s more to Canada than its universities though. As a multilingual and multicultural country with modem cities and beautiful natural features, Canada offers an ideal location for postgraduate study abroad. Whilst completing your Masters degree you’ll have the opportunity to visit stunning sites such as the Rocky Mountains and Great Lakes.

Your choice of institution will also range between the vibrant French-Canadian province of Quebec (where degree programs are offered in French and English) or remote cities such as Halifax, in northern Nova Scotia.

Canada is an increasingly popular destination for international students, with over 150,000 now studying at its universities.

Most Masters Canadian Masters degrees are one year long, but some courses incorporate additional project work or internship opportunities. The Canadian academic year normally begins in September.

Fees for Canadian Masters degrees vary between programs, but are usually higher for international students. Typical costs range between CAD $8,600 (USD $6,825) and CAD $20,000 (USD $15,870) per year, but various scholarship schemes are available.

Most Canadian degree programs are taught in English, but universities in the Quebec region also offer a large number of courses in French.

International students require a study permit to live and study in Canada. This is conditional on acceptance at a Canadian university and can be applied for online or via a Canadian embassy.

**Master’s Degrees in United Kingdom**

With ancient universities located in historic cities, the UK is Europe's most popular study abroad destination. Master’s degrees in the UK benefit from the expertise and prestige of a world-renowned higher education system, with a huge range of courses and qualifications on offer across England, Scotland, Wales and Northern Ireland.

The UK has much to offer international postgraduates. The reputation of its universities is second to none, including prestigious ‘ancient universities’ such as Oxford, Cambridge, Edinburgh and St Andrews as well as a range of younger institutions offering innovative Masters degrees and MBAs supported by modem research and training facilities.

Meanwhile, the structure and content of British degree programs isn't just internationally recognised: it actually forms the basis of several other qualification systems used around the world.

Studying a Masters abroad in the UK will also allow you to visit famous cities like London or Edinburgh, discovering their rich history and exploring the food, drink and entertainments of one of the world’s most multicultural and cosmpolitan countries.

Over 425,000 people study abroad in the UK, making it the world’s second most popular international study destination.

Most taught Masters degrees in the UK are one year long. Students complete two terms of assessed study modules, before proceeding on to a final dissertation project over the summer. Masters degrees by research in the UK follow a different format and usually take up to two years to complete.

Fees for international postgraduates in the UK are higher than those for domestic students. Most Masters programs cost between £12,000 and £15,000 per year.

All Master’s degree programs in the UK are taught in English. Some universities in Wales also offer optional teaching in Welsh.

Universities often provide some language support to international students, but will require non-English-speaking applicants to submit a recognised language test (or its equivalent) as part of their application.

EU and EEA students do not require a visa for postgraduate study in the UK. Other international students should apply for a visa with the sponsorship of their university.

**Comprehension check**

1. Why study a Masters in Canada/ in the UK?

2. How popular is Masters study in Canada/ in the UK?

3. How long is a Master’s degree in Canada/ in the UK?

4. How much does it cost to study a Masters in Canada/ in the UK?

5. Are Canadian Masters degrees taught in English/ in the UK?

6. Will I need a visa to study a Master’s degree in Canada/ in the UK?

**Tasks**

Describe the procedure of applying for admission to the Master’s program and give more information about Masters Degrees in different countries.

Prepare Power Point presentation. MIS-2: “Education in master’s degree in Kazakhstan and abroad” (see Samples. Appendix 6).

**PART 2.**

**SCIENTIFIC RESEARCH**

**Research activity of KazNU**

Research activity at the al-Farabi Kazakh National University aimed at expanding and completion knowledge about objectively existing laws of phenomena and processes occurring in the social and natural environment.

At the al-Farabi Kazakh National University research activities include the research projects, commercial contracts and implementation of research results in the form of publications and reports on international and regional educational and scientific markets.

One of the most important areas of research activities is students research work. This is a powerful factor in improving the quality of training of specialists with higher education who can creatively use achievements of scientific and technological progress in the practice. In is important to notice that enhancing the quality of fundamental, applied and innovative research will improve the image of the university and raise its rating.

**Policy of research activity**

The al-Farabi Kazakh National University has sufficient education, research, innovation and industrial potential to become one of the world leaders in the field of higher education. It has real possibilities to train high qualified specialists, integrate into the world educational system, develop fundamental and applied investigations, and apply the achievements of research into production. One of the priorities of the al-Farabi Kazakh National University is the development of fundamental and applied investigations, which can transfer a new knowledge.

The improvement of conditions for conducting modem research on the base of the al-Farabi Kazakh National University allows compete with the best international universities. The university contributes to all-round support and improvement of existing successful research directions, where there is a chance to meet high standards in research, training specialists, which are able to be competitive in today’s market conditions.

The effectiveness of research and innovation should also be estimated by level of targeted funding and the number of executed scientific and technical projects. In addition to the state grant funding the al-Farabi Kazakh National University develops also joint scientific research conducted with industry and business organizations. Cooperation with business partners allows the University to use new funding sources.

One of the objectives of research policy of the al-Farabi Kazakh National University is the training of highly qualified scientific and teaching staff capable to increase social and economic contributions in development of the country. In the al-Farabi Kazakh National University is paid special attention to the development of fundamental research as a basis for the creation of new knowledge, the combination of fundamental and applied research with competitive commercial development, development of new technologies, preservation and development of scientific schools in the important areas of science, training technical and scientific staff in the field of innovation, support of innovation activity in the education system and the commercialization of research results.

Thus, in the al-Farabi Kazakh National University stets targets on implementation of cycle promotion of innovative products and technologies to market - from idea to final commercial product. This significantly contributes to the field of science, society and economy.

**Master’s scientific research activity**

Masters’ scientific research activity (MSRA) is an obligatory, integrally integral part of training of specialists at university and enters into number of the main objectives. Student’s scientific research activity (SSRA) and undergraduates is carried out within the curriculum - students’ educational research activity (SERA), and out of the curriculum, within the work of 155 scientific circles coordinated by heads of scientific circles, SSRA council, Council of young scientific (CYS) and Student’s scientific society (SSS) as well as deputy deans on research work and international relations at faculties.

In order to SSRA strength this area of research deputies manager, chairs on research work, international relations and teachers at faculties developed tasks with the subsequent introduction in educational process. The most potential students participate in the various Olympic Games city, regional, republican, international levels.

SSRA councils operate in all faculties, chairmen of these councils make SSRA council at KazNU. Council of SSRA consists of 3 sectors – scientific, organizational and information. Thanks to such structure each member of council of SSRA is responsible not only for the faculty, but also for a certain sectors. For the purpose of establishment of direct contacts between students, undergraduates and young scientists, joint meetings of council of SSRA and CYS are held once a month.

**Speech Practice**

Characterize KazNU as a leading research center putting special emphasis on educating young researchers and international research contacts.

**My scientific interests**

Read the following dialogue. Do you agree or disagree with the answers given below?

|  |  |
| --- | --- |
| 1 | 2 |
| 1. Why have you chosen a research-oriented program? | 1. I’ve chosen this program because I think it’s a challenge to do research. It’s not just studying something, it is also doing something original on the basis of what has already been done by someone. |
| 2. So, research is a creative type of work, isn’t it? | 2. Oh, yes, beyond any doubt. |
| 3. How could you characterize creative work? | 3. In my opinion, it is further development of scientific ideas put forward by researchers in the field, looking for new ideas, and creating something entirely new. |
| 4. Well, thank you. It seems to be the right thing. One more question, please. Why is participation in conferences of various levels considered so important for young researchers? | 4. First of all, I think, it is an opportunity to meet face to face with prominent researchers in the field, to listen to their presentations, and to make your own presentations. It is an opportunity to learn something new and stimulating, and exchange ideas. |
| 5. Do you share the view that the English language is a “communication tool” for researchers? | 5. Well, yes, if it is an international conference where you have an opportunity to communicate with your foreign colleagues person-to-person, understand and discuss the papers presented. Besides, you need it for reading. Sure, it is an important, even indispensable “communication tool.” |
| 6. Is research, in your opinion, teamwork or individual activity? | 6. I think both. At the present time, though, it seems to be teamwork first of all. |
| 7. Thank you very much for the interview. | 7. You are welcome. |

**Task 1:** Write an essay on the topic according to the plan given below.

1. Introduction (containing information about the field you want to investigate into, the reasons why you have chosen this field, its significance and actuality)

2. Main part. This should contain the following information:

1) Historical background of your field of research. Contributions made by foreign and our country’s schools of thought.

2) State-of-the-art (present day) of you field of research.

3) Contribution made by researchers of your department. Research projects you department participates in.

4) Your research (with the emphasis on your master’s thesis dissertation as well as participation in conferences and publications in learned journals in English and reading scientific literature in English)

3. Conclusions (These should summarize the information pre­sented and set goals for further research)

**Task 2: Speech Practice**

1. Give a talk about your research work.

2. MIS - 3: “My scientific research”.

Prepare Power Point presentation about “My scientific research” use Questions on the Master’s Scientific Activity, Collocations with research and helpful vocabulary given bellow.

**Task 3**: Learn helpful vocabulary

do research; explore in depth; carry out an investigation; the history of the field dates back to; state-of-the-art; research effort; participate in a project; to be(a)part of a project; research team; teamwork; ill' project has been supported (in part) by a grant from; under the grant from; principal investigator (ведущий специалист); present the thesis / dissertation for defense.

**Task 4:** Answer the questions on the Master’s Scientific Activity

1. What fields of science are you engaged in (do you deal with?)

2. What problems are you going to touch upon in your scientific paper?

3. What is the subject of your dissertation?

4. Has the subject of your dissertation been approved already?

5. What are the main points of your scientific paper?

6. What problems are you going to single out in your paper?

7. What problems (question) is your scientific paper devoted to?

8. What are the main ideas of your dissertation?

9. Have you drawn up the plan of the dissertation yet?

10. Will you outline the main ideas of the dissertation?

11. Have you collected any material already?

12. Have you compiled the bibliography for the dissertation?

13. How many chapters does your dissertation consist of?

14. How often do you see your scientific advisor?

15. Have you published any articles on the subject of your dissertation? How many?

16. Have you written the first chapter of the dissertation?

17. Are you going to complete your work within the time limit?

18. When are you going to present your scientific paper?

19. Have you written the first chapter of the dissertation?

20. When are you going to submit the dissertation for defense?

21. What original ideas does your dissertation contain?

22. Do you find the subject chosen very topical (important)?

23. When did you take your entrance exam?

24. Do you find it difficult to write summaries?

25. What is the most difficult point while writing a thesis?

26. How long could it take you to write a summary/a thesis?

27. Are you going to use any illustrations or tables in your scientific paper?

28. Do you use a special language or some special terms in writing your thesis?

29. What is the typical structure of a thesis?

30. Will you need to write a report on your thesis?

**Task 5**: Learn collocations with research

Research can be translated as исследование, (научно) исследовательская работа, научная работа or наука, depending on the context. A particular investigation is not called a research but a piece of research (or an investigation / study). The word research is uncountable. Sometimes, however, research is used countable in the plural

e. g. His researches produced some interesting results.

Research may also be used as a verb, often into

e. g. He is researching into the air pollution.

More often, however, the expressions to do research or be engaged in research (formal style) are used with the noun research in this sense (see below).

The following prepositions are used with the noun research:

1. On is used with a more or less specific subject

e. g. I’m doing research on the history of foreign economic relations.

2. In is used with the field of investigation

e. g. He is engaged in research in numerical methods.

3. Into occurs less often, mainly with words such as problem, cause, relation, origin.

e. g. Recent research into the cause of air pollution reveals new statistical data.

To do research with no adverbial modifier specifying the subject or field means to be a postgraduate student, or, as this is also called, a research student

e. g. Master students take a specified number of courses and do research.

Collocations translated as заниматься / вести исследовательскую работу to carry out / conduct / do / pursue / be engaged in / undertake research (on/in/into smth)

Other collocations with research

to complete / direct / refer to / stimulate / give priority to research academic / basic / comprehensive / complex / current / descriptive / detailed / empirical / experimental / extensive / fundamental / independent / original / profound / scientific / theoretical / thorough / computer science research

research agenda / Council / grant / literature / paper / program / project / team / topic / tool

e. g. A scientific paper is a culmination of scientific research.

The depiction of structures in higher dimension is currently an active area of computer science research.

This work was supported by research grants from the Russian Federation government.

I want to review much of the research literature which bears directly on our further work. The journal is an innovative forum for scholarly debate, as well as for research and theoretical papers.

This educational area of specialization has its own theoretical orientation and research tradition.

*(Based on J. Povey and L Walshe, An English Teacher’s Handbook of Educational Terms, Moscow. “Vyssaja Skola”, 1982 and N.K. Riabtseva, English for Scientific Purposes, Flinta Publishers / Nauka Publishers, Moscow, 2000)*

**Participating in an international conference**

**Vocabulary**

A meeting/ a session - people who gather for discussion.

A plenary meeting / the opening ceremony- the beginning of a conference.

A chairman/ a chairwoman/ a chairperson - a person who organizes thework of participants of the conference.

To call upon someone / to give the floor to someone – to give somebody an opportunity to present a report or speech.

To set up/ to fix the time limit - a definite time allowed for presenting a report or speech.

To break the time limit - to take more time than allowed.

To call attention to the time limit - to draw attention to the time limit.

To stimulate discussions - to encourage people’s participation in the discussion.

To ask somebody a question - to put a question.

To call for questions - to give an opportunity to put questions to speaker.

A speaker - a person who presents a speech.

To submit abstracts/ to present papers/ to present poster reports - to pass an article or short thesis of the report to commission.

To take part in/ to participate in - to attend a conference

To take the floor - to take an allowance to speak before the audience.

To keep/ to stick to the point - to be close to the problem of the report.

To digress from the subject - to be away from the main points of your report.

**Speaking**

Answer the questions using active vocabulary

1.Have you ever participated in international conferences/symposia/congresses?

2. When did you last take part in a conference held?

3. Where was the conference held?

4. What problems were considered and discussed?

5. How many participants attended the conference held?

6. Which reports attracted general attention?

7. Whose report was of particular interest?

8. What problem did in deal with?

9. Did you read/ present a paper at conference?

10. Were you given the floor?

1l. Was the time limit fixed?

12. Did you find your English sufficient/adequate to participate in the international conference?

13. Do you think you have a good/poor knowledge of English?

14. Did you find the speaker’s English hard to follow'?

15. Why is it necessary/ important for a scientist to know foreign languages?

**1. Complete the sentences with the words from the Active Vocabulary Section:**

Every year conferences ... in our university.

This year I ... in the conference which was held....

I had to ... die abstracts covering the problem of....

The time limits was ... and I had ten minutes to...

My report... the problem which ... much attention.

Of … interest were the reports presented by X and Y.

I …in understanding English, because I find my English....

**2. Translate the following scientific expressions into Russian:**

We shall begin this part of the work by discussion and comparing....

We shall begin with a brief consideration of...

It is well to begin with a little clarification.

First something should be said about...

From the very start it is necessary to point out...

It would be clear from what had been said above...

It follows logically....

All these important questions will be elucidated in the subsequent chapters.

It will be briefly considered in the chapters on ....

In order to understand the mode of thought we must turn back to...

**3. Translate into English:**

1. Мы должны вернуться к …

2. Мы можем вернуться к вопросу …

3. В предыдущей главе мы сосредоточили внимание на …

4. Необходимо кратко осветить (остановиться на …, коснуться) …

5. То, что мы собираемся сказать, не значит, что …

6. Здесь совершенно необходимо сказать несколько слов в качестве …

7. Мы можем сказать это иначе …

8. Можно было бы привести другие факторы …

9. Прежде чем продолжить, необходимо добавить несколько слов …

10. Это требует дополнительного разъяснения.

**4. Work in pairs**

Ask for and give information about your participation in a conference/ symposium / congress.

**5. Work in a group**

You are at a round - table discussion of your research, its progress and results. One person in your group is a chairman, the rest are the speakers.

You share your opinions about the organization of the conference, its agenda, the chairman’s speech and the reports presented.

**6. Act out the situation**

Your fellow - student has never participated in a conference. He is eager to know about your experiences. Tell him what the most difficult thing for you was and what you enjoyed the most.

**7. Speech and reading exercises:**

*Read the following article*

Today’s advanced vacuum furnaces rely on “adaptive” control systems for process optimization. Depending on the machine or process, different variables exist that must be monitored, controlled, and/ or changed during the cycle to achieve maximum throughout and accurate micro structural results. This is accomplished by sensors that monitor a particular parameter and send the gathered data back to u controller, then compares it to a predetermined value or set point. After calculations are performed the controller sends a signal back to the device that makes the proper adjustments to obtain a “controlled” process. An everyday example is an automobile’s cruise control system, which maintains the speed set point. The variables of speed, acceleration, and resistance are monitored, and then adjustments are made to reach the desired end result. Control systems on vacuum furnace function similarly by optimizing and regulating temperature and preside to achieve the required process conditions and produce repeatableresults. Programmable logic controllers (PLCs), sensors, and computers make this all possible. In turn, data tending plus real-time processmonitoring and data collection for permanent retention are easily monitoring and data collection for permanent retention are easily accomplished. By analyzing this data, new cycles containing modified variables can yield better results in less time.

Several manufacturers of hardware/software - Allen-Bradley, Siemens, Honeywell, and others - make this adaptive technology possible. In the United States, for instance, numerous options in Allen-Bradley’s PLC line allow the ideal controller to be selected to fit the needs of the machine and user. As a rule, more powerful controllers are used on higher-end-equipment and processers. Here, repeatability and reliability may justify a higher cost.

Ease of programming and versatile architecture in hardware/software packages, plus a range of choices in memory, input/output (I/O) capacity, instruction set, and communication ports, allow an OEM to tailor a control system to a customer’s exact application requirements. As a result, such products (for example, Allen-Bradley’s SLC500 software line with RSLogix 500 software) are still growing in popularity with American users. Open communications architecture for other brands of PLCs and human/ machine interfaces (HMIs) also enable networking and data collection capabilities now required by many companies. This compatibility issue with existing furnace systems can be an important consideration for both commercial and captive heat treaters when considering furnace upgrades.

PLD (proportional-integral-derivative) control for vacuum furnaces is not widely used within a PLC. PM controllers are feedback types that monitor the set point error three ways - current value, integral over time, and current derivative - then determine the magnitude of the connection and how long to apply it. Buying a reliable external temperature controller (for example, Honeywell UDC 3300) takes care of this function economically.

Operator terminals (e.g., Allen-Bradley’s PanelView line) offer electronic interface solutions in a variety of sizes and configurations. Each system is capable of proving process information over a variety of communication protocols by Ethernet, ControlNET, DeviceNET, DH+, OH485, and R5-232C. Most are offered in touch-screen or keypad versions and include tools such as alarming, quality imaging, and data trending. This gives the end-user a variety of options to meld with existing equipment and reporting systems.

More widely used in the European market, Siemens technology continues to grow in popularity in the United. Newest in their class, 57 PLC products offer very fast scanning rates and networking capabilities with RS-232, RS-485, Profibus - DP, and MPI protocols. Various touch screens and pushbutton interfaces are suitable for machine operation. A strong force overseas steers many American “sister” companies to use Siemens controllers. However, acceptance for these controls may create a dilemma for engineers and maintenance personnel who are more familiar with products often used in the U.S. industry. Proper support and part availability are major concerns for American OEMs and end-users alike. But as Siemens continues to expand, these concerns may decrease. More Siemens controllers and products will be accepted as U.S. companies grow with higher-end technology.

Honeywell has dedicated product lines specifically for temperature control. Their universal digital controllers (UDCs) have a proven track record for temperature control. The PLC merely sends the set point to the UDC controller, which then takes over control. The company also has its own modular controller (universal multiloop controller UMC 800) that addresses the analog and digital control requirements of small unit processes, providing integrated loop and logic control. Using its strong algorithmic background for PID control, it combines PLC function block programming for machine functionality. This is an ideal solution for small furnaces with limited input/output (1/0) needs.

For smaller vacuum furnaces that don’t require the power of a PLC, a digital control processor (DCP) is adequate to run a furnace program. With Honeywell’s OCP 550, for example, 99 programs with 99 segments, ramp rate, soak set point, soak time, and events are all parameters that can be entered and run within this controller. Its PID loops maintain certainly between the temperature set point and furnace control thermocouple.

The method of controlling basic vacuum furnace process parameters has definitely changed over the years. PLC controls tied to versatile HMIs are now doing the job that previously required several devices.

Supervisory monitoring/limited control is becoming increasingly popular. These remote systems are ideal for data collection and real-time information purposes. A prime example is Wonderware’s Intouch package. Recipes for loads can be stored and created remotely, individuals at a different location can view the status of machine systems via graphics, and information can be saved to various databases or plant networks for backup. Overall, these systems give heat treaters increased versatility and expandability. It is now possible for several machines or even entire lines throughout a plant to be connected to one supervisory PC that monitors and collects all machine variables. With proper part tracking tools, such a system can also manage and optimize workflow throughout a plant. Utilizing the capabilities of such networked systems keep heat treatment on the leading edge of this communication revolution.

Productive software that calculated or simulates process cycles is available today. Upon entering the hardness level required, the material to be treated, and the required case depth (in case of atmosphere or vacuum carburizing), the software generates the recipe required to achieve the requested results. This is very beneficial for heat treaters that process different types of parts. Once a recipe is generated, this information can be sent to the furnace’s control system for execution. Materials results can then be compared with the cycle that was run, giving a metallurgist the ability to improve or adjust specific parameters if needed.

**1. Write a summary of the article.**

Make out the plan of the article.

Speak in public on the following article using the plan.

Listen to the presentation and mark if the speaker managed:

To promote the proper mood;

To clarify the content of the speech;

To provide the sense of closure.

**Glossary**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| # | English | Russian | Kazakh |
| 1 | A meeting / a session | собрание, сессия | жиналыс |
| 2 | A plenary meeting / the opening ceremony | пленарное заседание, церемония открытия | пленарлық отырыс, ашылу рәсімі |
| 3 | To call upon someone / to give the floor to someone | предоставить слово – кому-то | сөз беру |
| 4 | A chairman / a chairwoman / a chairperson | председатель заседания (женщина, мужчина) | отырыс төрағасы |
| 5 | To set up / to fix the time limit | установить регламент выступления | регламентті белгілеу |
| 6 | To break the time limit | нарушить регламент | регламент бұзу |
| 7 | To call attention to the time limit | обратить внимание на регламент | регламентке көңіл бөлу |
| 8 | To stimulate discussions | стимулировать обсуждение | талқылауды ынталандыру |
| 9 | To keep / to stick to the point | говорить по сути вопроса | сұрақ бойынша сөйлеу |
| 10 | To digress from the subject | уклоняться от сути предмета | сұрақ бойынша сөйлемеу |
| 11 | To submit abstracts | сдать тезисы | баяндаманы тапсыру |

**Tasks:**

Read, translate the active vocabulary and recommendations concerning your presenting a paper on the conference.

Prepare a presentation of the data of your research on the conference. Choose an article close to the subject investigated and do the following steps:

define its main idea;

work out thesis to it;

write a summary of the article.

**Science and technology**

1. Science problems can be roughly classified as analytic and synthetic. In analytic problems we seek the principles of the most profound natural processes, the scientist working always at the edge of the unknown. This is the situation today, for instance, within the two extremes of research in physics-elementary particle physics and astrophysics - both concerned with the properties of matter, one on the smallest, the other on the grandest scale. Research objectives in these fields are determined by the internal logic of the development of the field itself. Revolutionary shocks to the foundations of scientific ideas can be anticipated from these very areas.

2. As to synthetic problems, they are more often studied because of the possibilities which they hold for practical applications, immediate and distant, than because their solution is called for by the logic of science. This kind of motivation strongly influences the nature of scientific thinking and the methods employed in solving problems. Instead of the traditional scientific question: “How is this to be explained?” the question behind the research becomes “How is this to be done?” The doing involves the production of a new substance or a new process with certain predetermined characteristics. In many areas of science, the division between science and technology is being erased and the chain of research gradually becomes the sequence of technological and engineering stages involved in working out a problem.

3. In this sense, science is a Janus-headed figure. On the one hand, it is pure science, striving to reach the essence of the laws of the material world. On the other hand, it is the basis of a new technology, the workshop of bold technical ideas, and the driving force behind continuous technical progress.

4. In popular books and journals we often read that science is making greater strides every year, that in various fields of science discovery is followed by discovery in as steady stream of increasing significance and that one daring theory opens the way to the next. Such may be the impression with research becoming a collective doing and scientific data exchange a much faster process. Every new idea should immediately be taken up and developed further, forming the initial point an avalanche-like process.

Things are, in fact, much more complex than that. Every year scientists are faced with the problems of working through thicker and tougher material, phenomena at or near the surface having long been explored, researched, and understood. The new relations that we study, say, in the world of elementary particles at dimensions of the order of 10-13 cm or in the world of superstellar objects at distances of billions of light years from us, demand extremely intense efforts on the part of physicists and astrophysicists, the continuous modernization of laboratories with experimental facilities becoming more and more grandiose and costing enormous sums. Moreover, it should be stressed that scientific equipment rapidly becomes obsolete. Consequently, the pace of scientific development in the areas of greatest theoretical significance is drastically limited by the rate of building new research facilities, the latter depending on a number of economic and technological factors not directly linked to the aims of the research.

**Task 1**. Be ready to answer the following questions in class.

1. What are the two motive forces behind synthetic and analytic research?

2. What is the main idea of the 4th paragraph?

3. What problems are scientists faced with?

4. Does the pace of scientific development depend on the rate of building new research facilities? Prove your point of view.

**Task 2.** Translate paragraph 5 in writing.

**Speaking.** Topics for discussion

**1.** The present-day relation between science and technology.

**2.** Favourable and harmful effects of scientific and technological discoveries on human life.

**What science is?**

1. It can be said that science is a cumulative body of knowledge about the natural world, obtained by the application of a peculiar method practiced by the scientist. It is known that the word science itself is derived from the Latin “scire”, to know, to have knowledge of, to experience. Fundamental and applied sciences are commonly distinguished, the former being concerned with fundamental laws of nature, the latter engaged in application of the knowledge obtained Technology is the fruit of applied science, being the concrete practical expression of research done in the laboratory and applied to manufacturing commodities to meet human needs.

2. The word “scientist” was introduced only in 1840 by a Cambridge professor of philosophy who wrote: “We need a name for describing a cultivator of science in general. I should be inclined to call him a scientist”. “The cultivators of science” before that time were known as “natural philosophers". They were curious, often eccentric, persons who poked inquiring fingers at nature. In the process of doing so they started a technique of inquiry which is now referred to as the “scientific method”.

3. Briefly, the following steps can be distinguished in this method. First comes the thought that initiated the inquiry. It is known, for example, that in 1896 the physicist Henri Becquerel, in his communication to the French Academy of Sciences, reported that he had discovered rays of an unknown nature emitted spontaneously by uranium salts. His discovery excited Marie Curie, and together with her husband Pierre Curie she tried to obtain more knowledge about the radiation. What was it exactly? Where did it come from?

4. Second comes the collecting of facts: the techniques of doing this will differ according to the problem which is to be solved. But it is based on the experiment in which anything may be used to gather the essential data - from a test-tube to an earth-satellite. It is known that the Curies encountered great difficulties in gathering their facts, as they investigated the mysterious uranium rays.

5. This leads to step three: organizing the facts and studying the relationships that emerge. It was already noted that the above rays were different from anything known. How to explain this? Did this radiation come from the atom itself? It might be expected that other materials also have the property of emitting radiation. Some investigations made by Mme Curie proved that this was so. The discovery was followed by further experiments with “active” radioelements only.

6. Step four consists of stating a hypothesis or theory: that is framing a general truth that has emerged, and that may be modified as new facts emerge. In July 1898, the Curies announced the probable presence in pitchblende ores of a new element possessing powerful radioactivity. This was the beginning of the discovery of radium.

7. Then follows the clearer statement of the theory. In December 1898, the Curies reported to the Academy of Sciences: “The various reasons enumerated lead us to believe that the new radioactive substance contains a new element to which we propose to give the name of Radium. The new radioactive substance certainly contains a great amount of barium, and still its radioactivity is considerable. It can be suggested therefore that the radioactivity of radium must be enormous”.

8. And the final step is the practical test of the theory, i. e. the prediction of new facts. This is essential, because from this flows the possibility of control by man of the forces of nature that are newly revealed.

9. Note should be taken of how Marie Curie used deductive reasoning in order to proceed with her research, this kind of “detective work” being basic to the methodology of science. It should be stressed further that she dealt with probability

- and not with certainty - in her investigation. Also, although the Curies were doing the basic research work at great expense to themselves in hard physical toil, they knew that were part of an international group of people all concerned with their search for truth. Their reports were published and immediately examined by scientists all over the world. Any defects in their arguments would be pointed out to them immediately.

**Task 1.** State the main idea of the paragraph. Give the Russian equivalents of: a cumulative body of knowledge, a peculiar method practiced by the scientist, manufacturing commodities to meet human needs.

**Task 2.** Identify the topic sentence of the paragraph.

**Task 3.** Find the sentence describing the final step in the development of hypothesis.

**Task 4.** Be ready to answer the following questions in class.

1. What do you know about the origin of the word “science”?

2. When and where was the word “scientist” introduced? What did it mean?

3. Flow many steps can be distinguished in the “scientific method"'’

4. What is the process of collecting of facts based on?

5. What does the step consist of?

**Task 5.** Translate paragraph 9 in writing.

**Speaking.** Topics for discussion

1. The main steps of the “scientific method”.

2. The role of deductive reasoning in science.

**Research: Fundamental and Applied Science**

People are always talking about fundamental research, implying thereby the existence of a nameless opposite. A good definition of fundamental research will certainly be welcomed: let us see whether we can invent one. We have to begin, of course, by defining research. Unfortunately the concept of research contains a negative element. Research is searching without knowing what you are going to find: if you know what you are going to find you have already found it, and your activity is not research. Now, since the outcome of your research is unknown, how can you know whether it will be fundamental or not?

We may say for instance that fundamental research is that which you undertake without caring whether the results will be of practical value or not. It may not be reasonable to go further and say that fundamental research is that which will be abandoned as soon as it shows a sign of leading to results of practical value. By saying this you may limit your own achievement. It will be better to say that fundamental research is that which may have no immediate practical value, but can be counted upon as leading to practical value sooner or later. The extension of knowledge and understanding of the world around us will always be profitable in the long run, if not in the short.

This is a very powerful argument for fundamental research and it is a completely unassailable one, and yet there are people who will not like it. Let us seek a definition that will give fundamental research a value of its own, not dependent upon other uses appearing soon or late. We say, for instance, that fundamental research is that which extends the theory. Now we have to theorize upon theory.

There have been several viewpoints about theory. One is that theory discerns the underlying simplicity of the universe. The non-theorist sees a confused mass of phenomena: when he becomes a theorist they fuse into a simple and dignified structure. But some contemporary theories are so intricate that an increasing number of people prefer dealing with the confusion of the phenomena than with the confusion of theory.

A different idea suggests that theory enables one to calculate the result of an experiment in a shorter time than it takes to perform the experiment. I do not think that the definition is very pleasing to the theorists, for some problems are obviously solved more quickly by experimentors than by theorists.

Another viewpoint is that theory serves to suggest new experiments. This is sound, but it makes the theorist the handman of the experimentator, and be may not like this auxiliary role. Still another viewpoint is that theory serves to discourage the waste of time on making useless experiments.

**Task 1.** Divide the text into its logical parts and give a title to each part.

**Task 2.** Explain the meaning of the words “research”, “definition”, “argument” in English. Give the sentences of your own using these words.

**Task 3.** What have you learnt about:

a) fundamental research

b) different viewpoints about theory

c) possible outcome of the research

**Task 4.** **Give your point of view.**

a) Fundamental research has no immediate practical value.

b) Research is searching without knowing what you are going to find

**Experiment and theory**

When we carry out an experiment, we do it because we don’t know what the result will be. If we knew in advance we wouldn’t bother. There must be two, or several, or a large number of possibilities. We may expect one of several outcomes, or we may not know at all what to expect.

For the experiment, whatever its purpose, to be considered a test of some theory, the outcome must make a difference. If the experiment has one result, we must be led to a greater degree of confidence in our theory, if it has another result we must be led to a greater degree of doubt. If the degree of doubt. If the degree of our belief was unaffected by the result the experiment cannot be said to have been a test, although it may have been valuable or interesting for other reasons.

For a theory to be part of science we must be able to imagine the possibility that some kind of evidence, if it were available, would lead us to make us doubt the theory. It has been said that for a theory to be scientific, it must be refutable.

Nobody needs to be told that theories should be confirmable, in the sense that new experiments must be able to increase our confidence in them – we all take it for granted. We do need to be reminded from time to time that we might be wrong, and should be open to evidence that might show it. Conformability and refutability are two sides of a single coin. New facts should be able to change our degree of belief one way or another. Only if this is so is our belief scientific. There are often reasonable alternative explanations why a good theory will fail in some particular circumstances, and even when there aren’t, if we think the theory is better that any alternative available we will stick with it and try to find special explanations of why it didn’t work in these circumstances.

**Task 1.** Answer the following questions.

1. What are possible results of an experiment?

2. What is necessary for a theory to be scientific?

3. Give your own explanation to the statement that “theories should be confirmable”.

4. What can change our attitude to scientific theory?

5. Is it possible for a good theory to fail in some particular circumstances?

**Task 2.** Join the suitable parts.

1. When we carry out the experiment we may expect… a) be confirmable.

2. We carry out the experiment because we don’t know… b) be refutable.

3. If the experiment has one result, we must be led to… c) be refutable.

4. Nobody needs to be told that theories should… d) one of several outcomes.

5. For a theory to be scientific, it must… e) what the result will be.

**Task 3.** Arrange the sentences in their logical order.

1. New experiments must be able to increase our confidence in them.

2. For a theory to be scientific, it must be refutable.

3. When we carry out an experiment, we may expect one of several outcomes.

4. There are often reasonable alternative explanations why a good theory will fail in some particular circumstances.

5. Conformability and refutability are two sides of a single coin.

**Scientific Style**

The research process aims at facts and other information discovering and interpretation. The purpose of research prose is to analyze and interpret information while making valid conclusions based upon the research.

The scientific writing style is called expository writing – that is, it explains and clarifies information. The reliability of sources and the careful documentation is important, but its effectiveness depends on how well ideas are communicated. While writing, you should avoid excessive technical detail or jargon. When you are writing a research paper, a report, abstracts, it is as if you are having a conversation with your reader.

**Questions:**

1. What is the typical structure of a report?

2. How can the reports be illustrated?

3. What is characteristic for scientific style?

4. How do most colleges and universities consider the style for writing papers?

**Scientific Report**

The purpose of a scientific report is to convey essential information in an organized, useful format. And despite technological advances, the ability to accumulate data, organize facts and compose a readable text remains a highly marketable skill.

A well-prepared report will provide complete, accurate information. This information is often meant to influence decisions, to be used in determining changes, improvements, or solutions to problems. Therefore, the report must be also clear, concise and readable.

Reports can be analytical and informational (providing necessary information), formal and factual (containing information obtained through investigation). Reports are made for the benefit of others – supplying the readers or the audience with the information they need in a form they can understand. Each report must serve at least one of the following purposes:

1. to inform

- inform others of work done or progress made;

- provide update on the progress of the project.

2. to instruct

- tell others how to put ideas into practice;

- explain how a new system will operate.

3. to influence

- sell your ideas and persuade the reader or the audience to make a decision;

- recommend a course of action.

4. to interpret

- assess a situation;

- draw up conclusions;

- summarize the findings.

The typical structure of a written report is as follows:

Preliminary Sections:

Preface or Foreword Acknowledgements Table of contents Summary

Main parts of the report:

Introduction Body of the report Conclusions Recommendations

Supplementing material:

Appendices Bibliography Glossary Indices.

It’s desirable to include into a report different illustrations, such as tables, charts, graphs, photographs, and drawings.

**Writing summaries and reports**

Translators have to work with different types of literature, they often use originals in their everyday work. Sometimes they have to come across the secondary sources of information. The secondary sources are worked up according to the contents of scientific information and the aims of using the original literature. The main secondary sources of foreign literature are:

*1) Bibliographical descriptions;*

*2) Summaries;*

*3) Reports;*

*4) Surveys.*

Each of the sources has a certain degree of information compression. The shortest source of the secondary documents is a bibliographical description. It contains the smallest quantity of information. A *bibliographical description* is a combination of pieces of information about the original work or its part which gives a general impression of the original. It includes different parts.

The first one is a title of the original. It is written in your own language.

The second one is some information about the author or a group of them.

The next one is a date of publishing. It includes a place of publishing and the name of publishing house given in a full form. The last one is a year of publication.

Sometimes there are some additional elements such as the number of figures and pages. The main function of making bibliographical descriptions is to notify readers of a new source of information. Translators of technical literature have to deal with summaries and reports all the time.

*A summary* (an annotation) is a brief characteristic of the contents of the original or the manuscript. The main purpose of such a simplification is to highlight the major points from the original (much longer) subject, e.g. a text, a film or an event. The target is to help the audience to get the main idea in a short period of time. We will take into consideration a summary on the content of scientific literature.

There are different types of summaries. They are classified according to their aims of usage and their essence. The first type is a *reference summary*. Such summaries report the theme of the original, give some facts of it and don’t express any opinion of the original work. The second type is a *summary of recommendation.* These summaries estimate the original and define a suitable class of readers. E.g. It’s recommended for scientists. It’s of great interest to technicians.

There is another classification of summaries according to the quantity of the original contents. The first kind is a *general summary*. They give some general characteristics of the original document. These summaries are written to a wide circle of readers. The second one is a *specialized summary*. They show some special aspects of the original. They are written to specialists in a variety of sciences. Summaries usually have a clearly arranged structure and they are written in a logical, chronological and traceable manner. *In contrast to a resume or a review, a summary contains neither interpretation nor rating*. Only the opinion of the original writer is reflected – paraphrased with new words without quotations from the text. Unlike a retelling, a summary has no dramatic structure and is written in present tense or historic present. Because summaries should be significantly shorter than the original, minor facts have to be left out. However all major conclusions should remain. In summaries only indirect speech is used and depictions are avoided. Summaries of books or dissertations present the major facts in common scientific language and should be about from a half up to one page long.

A person has to do the following things to write a summary:

* To read the text attentively;
* To formulate the main statement;
* To reread the text and underline important ideas and arguments according to the main statement;
* To introduce the author and title of the work in the opening sentence;
* To mention the important facts in chronological order.

If a person is going to write a summary he has to know some requirements concerning writing them:

1) The volume of a summary is from 500 to 2000 symbols;

2) A logical structure should be kept.

It is also necessary to take the language peculiarities into consideration:

* To give the main ideas and facts of the original simply and in brief;
* To avoid repetitions;
* Not to repeat the title of the original;
* To use the same terms as in the original;
* To use accepted abbreviations and shortenings;
* To avoid using adjectives, adverbs, introductive words a lot;
* To use word combinations helping to organize structure of summaries;
* To use key-patterns.

Each summary has a certain structure. It consists of several parts:

1. The introduction. It is the stage where a reader faces the problem.]

2. The body. It expresses the main facts and problems of the original document.

3. The ending. It gives recommendations for a definite group of readers.

Usually a person begins to write a summary from the compression of information stated in the original. It’s a difficult process which consists of three main steps:

1) It’s necessary to express the main facts using the minimum of the original paper.

2) It’s necessary to follow the main ideas of the original.

3) It’s necessary to find some extra information about this problem.

The compression can be done in two ways.

The first one is a process pf diminishing the quantity of the original information.

The second one is a process of keeping information completely.

The first type of compression is divided into two variants: 1) The omission of details; 2) The generalization of the rest.

The second type of compression is divided into two types as well. The first one is a combination. A combination is a way of organizing the text when two or more sentences are combined in one short construction where the same components are used once.

E.g. 1. It takes only one number to describe a scalar quantity. It takes several numbers to describe a scalar quantity. It takes several numbers to describe a vector quantity. It takes only one number to describe a scalar quantity and several – a vector one. The second one is a substitution.

A substitution is a way of organizing the text when a part of the text is substituted by shorter one keeping the minimum of information of the original.

E.g. 1. He made up his mind to start the construction of another device. He decided to start…

2. The methods of multiplication of fractions in algebra are identical with those in arithmetics. Compression of the original text is the first step of writing summaries.

The next one is making a logical plan of the text. A person looks through the text and finds the most important sentences. It’s also necessary to pay attention to the language of writing summaries. A mention should be made about key-patterns usually used while writing them. They perform different functions. The key-patterns or speech models (stereotypes) make process of communication simpler, help not to waste translator’s time and to organize his ideas better. There is a classification of key-patterns according to their tasks. It’s built on the basis of notions. Usually there is a general notion and a lot of notions connected to them.

*Key-patterns for writing summaries:*

The article deals with…

As the title implies… the article describes…

The paper is concerned with…

It is known that…

It should be noted that…

The fact that… is stressed.

A mention should be made…

It is spoken in detail about…

It is reported that

The text gives valuable information on…

Much attention is given to…

It is shown that…

The following conclusions are drawn…

The paper looks at recent research dealing with…

The main idea of the article is…

It gives a detailed analysis of…

It draws our attention to…

It is stressed that…

Another popular form of secondary sources of information is a report or a review.

A report is a brief interpretation of the content of the original in a written form or orally. It also has particular features:

1. It gives a reader an objective idea of the original source.

2. It presents the main facts of the original.

3. It represents some peculiarities of it.

4. It shows many questions of the original.

5. It helps to get rid of making a full translation of the text.

Written reports are documents which present specific, focused contents – often the result of an experiment, investigation, or inquiry – to a specific audience.

The audience may be public or private, an individual or the public in general. Reports are used in government, business, education, and science. Reports often use persuasive elements, such as graphics, images, voice, or specialized vocabulary in order to persuade that specific audience to undertake an action. One of the most common formats for presenting reports is IMRAD: Introduction, Methods, Results and Discussion. This structure is standard for the genre because it mirrors the traditional publication of scientific research and summons the ethos of that discipline. Reports are not required to follow this pattern, however, and some do use the problem solution format. Additional elements often used to persuade readers include: headings to indicate topics, to more complex formats including charts, tables, figures, pictures, tables of contents, abstracts, summaries, appendices, footnotes, hyperlinks, and references. Some examples of reports are: scientific reports, recommendation reports, *while papers, annual reports*, auditor’s reports, *workplace reports, census reports, trip reports, progress reports, investigate reports*, budget reports, policy reports, demographic reports, credit reports, *appraisal reports*, inspection reports, military reports, *bound* reports, etc. With the dramatic expansion of information technology, and the desire for increased competitiveness in corporations, there has been an increase in the use of computing power to produce unified reports which join different views of the enterprise in one place. Termed **Enterprise Reporting**, this process involves querying data sources with different logical models to produce a human readable report. A computer user has to query the Human Resources databases and the Capital Improvements databases to show how efficiently space is being used across an entire corporation. Enterprise Reporting is a fundamental part of the larger movement towards improved Business Intelligence and Knowledge Management.

While reports can be distributed in a printed form or via email, they are typically accessed via a corporate intranet. A **technical report** (also: **scientific report**) is a document that describes the process, progress, and or results of technical or scientific research or the state of a technical or scientific research problem. It might also include recommendations and conclusion of the research.

Unlike other scientific literature, such as scientific journals and the proceedings of some academic conferences, technical reports rarely undergo comprehensive independent peer review before publication. Where there is a review process, it is often limited to within the originating organization. Similarly, there are no formal publishing procedures for such reports. Technical reports are today a major source of scientific and technical information. They are prepared for internal or wider distribution by many organizations, most of which lack the extensive editing and printing facilities of commercial publishers. Technical reports are often prepared for sponsors of research projects.

Another case where a technical report may be produces is when more information is produced for an academic paper than is acceptable to publish in a peer reviewed publication; examples of this include in-depth experimental details, additional results, or the architecture of a computer model.

There is another classification of reports: *an informative report* and *an indicative report*. An informative report or a *report – precis* contains all the main ideas and facts concerning with the methods of research and an equipment used in this research. It’s the most popular form of a report. An indicative report shows the ideas connected with the theme of the original. Reports can be classified according to the quantity of the literature used for making reports.

A *monograph report* is a report made on the basis of one original source.

An *illustrative report* is a report made on the basis of three or more sources.

*A report has particular parts. It consists of three parts.*

1) The first part is a bibliographical description of the original source. When a report contains many abbreviations or acronyms, they may be listed with their definitions before the body of the report, even though they most be explained in the text when first appearing unless they are standard units of measurement. Only standard abbreviations shall be used since non-standard abbreviations can be extremely confusing.

2) The second part is the body of the report. The body or the core of the report shall be structured according to its content and complexity. The core of report represents the main part of the document and shall permit the reader to understand its content (theory, methods, results). Topics should be presented in logical sequence. The structure of the core depends on the type of the document itself (handbook, research protocol, progress report, etc.).

The instructions to authors can show different levels for titles but it is up to the author to decide how to organize it. Figures and tables essential to the understanding of the text are included in the core of the report, but when information is too detailed (i.e. many tables or figures on the same subject) as to interrupt the flow of the text, it should be presented in appendices, which may contain also extra or supplementary materials. The text usually repeats all the data included in the tables or illustrations.

3) The third part is the additional information and notices. Appendices are not essential in every report. They can be identified by consecutive letters (Appendix A, Appendix B, etc.). They are used to present material that is necessary for completeness which can interrupt the flow of reading if inserted in the core of report or material that is not of interest for the general reader, but only for a specialist in the definite field. References in appendices are treated independently of those reported in the body of report and are listed separately at the end of each appendix. Non textual material generally defined as illustrations (tables, graphs, maps, photographs, flowcharts, drawings, etc.) plays a significant part in the presentation of concepts explained in the text and should be carefully organized.

Illustrations summarize and emphasize key points, improve clarity and reduce narrative length. They are both an integral and independent part of the text. They offer some useful visual aid to the reader and are a time-saving writing tool. In the text they may be defined as:

1) Tables (logically organized sequences of numbers or words);

2) Figures (every illustrative material that is not a table).

The choice between tables or figures depends on which elements are intended to be focused (a table points out results, a graph promotes understanding of results and suggests interpretations of their meaning and relationships; graphs shall be used as an alternative to tables with many entries without duplicating data in graphs and tables). Non textual material should be limited to that supporting the text and pertinent for the understanding of the study described. Each item can be numbered consecutively (Table 1, Figure 1) in the order of its first citation in the text, followed by a brief title. Illustrations can be cited in the text and placed soon after their citation (and not before) or included in appendices if they are so detailed as to interrupt the flow of reading.

If data included in illustrations are from other published sources, permission can be obtained by the copyright owner (except for documents in the public domain) and the original source shall be fully acknowledged. Use of colours for illustrations should be checked carefully. Tables are used when the attention of the reader is focused on data and not on trends of data.

They capture information concisely, and display it efficiently; they also provide information at any desired level of detail and precision. Including data in tables rather than text frequently makes it possible to reduce the length of the text. Oversized tables should be avoided. A table is a matrix containing rows and columns of data which must be homogeneous. Each column has a short heading guiding the reader in understanding the table content; each cell must contain data (in case of missing data it can be indicated by special marks or letters).

Authors should place explanatory matter on footnotes (not in the heading), which might contain also the explanation of non-standard abbreviations. Figures usually include relevant information needed for evidence, efficacy or emphasis. They should be made as self-explanatory as possible using legends, when necessary. Figures are suitable for printing (i.e. either professionally drawn and photographed, or produced as photographic quality digital prints in JPEG or GIF formats).

Although some organizations may help authors of technical reports to redraw figures, in most cases there is no editorial support and authors should be aware that the final printing quality depends on that of their original figures. Letters, numbers, and symbols should therefore be clear and even throughout. If photographs of people are used, either the subjects must not be identifiable or authors must obtain a written permission to use the photographs.

*The text of the report has three parts:*

1. The introduction. It shows the aim, the main tasks and the methods of research. It provides the context or background for the study and should state purposes, basic procedures, main findings, and principal conclusions. It emphasizes new and important aspects of the study or observations.

2. The descriptive part. It gives data of the subject of research, of its characteristics and peculiarities. It begins from the main idea of the original.

3. The conclusions. They give the results of research and represent the main deductions. Sometimes deductions of the writer are not represented. Conclusions represent the clear presentation of the deductions made after full consideration of the work reported in the core of the report. They may include some quantitative data, but not too many details. They may also contain recommendations for further actions as a direct result of the study described.

There are some rules for making reports:

1. The length of the report depends on the original source and is about 1/8 of information of the text.

2. Reports don’t represent a lot of proofs and discussions.

3. They don’t express person’s estimation and his own opinion just fixes the information of the original.

4. Information is given briefly due to usage of terminological vocabulary, tables, figures, formulae.

5. The style of the original is kept. It means the necessary of using author’s language.

6. You should keep the simplicity of the interpretation.

7. It is necessary to keep the subject narrow.

8. Copying a sentence you should do it exactly using quotation marks around it.

9. It is necessary to interpret author’s ideas in logical order.

10. There are a lot of tables in technical reports.

11. A lot of key-expressions are used for writing reports.

*Key-expressions for writing reports:*

1) The general characteristic of the article is …

2) The paper (article) under discussion is intended to describe …

3) The article is intended to explain the advantages of …

4) The paper under discussion is intended to examine …

5) The article surveys …

6) The tasks of the author …

7) The author outlines …

8) The author points out …

9) The writer reviews the problems of …

10) The authors review …

11) The value of the results …

12) The results obtained confirm …

13) The results show the importance of the problem of …

14) The results lead to …

15) The paper summarizes …

16) In summing up to author …

17) At the end of the article the author sums up …

While making reports people should follow the definite sequence of actions:

1. You look through the text quickly to catch the main ideas.

2. Then you read the text more attentively to understand unfamiliar words according to the context ore using a dictionary.

3. Then you analyze the text and divide your material into groups:

a) The main facts which are necessary to reprint in your report;

b) Secondary information interpreted in brief;

c) Unnecessary information.

4. You organize your ideas clearly beginning from making the plan of your report.

5. You end up your report with the bibliography.

The main structure of the report

Summaries have some peculiarities and differences from reports (reviews):

1) They give very brief information of the original. They are shorter than reports.

2) They don’t retell the content of the original paper.

3) They don’t elucidate the quantity of facts given in the report.

4) They don’t give any conclusions in comparison with reports.

5) The quantity of key-patterns is smaller in annotations than in reports.

Each person has to take into consideration a lot of things if he is going to write a summary or a report to avoid typical mistakes.

**Glossary:**

1. Bibliographical description – библиографическое описание

2. Summary – конспект

3. Survey – обзор

4. Reference summary – ознакомительный конспект

5. Summary of recommendation – рекомендательный конспект

6. Informative report – обзорный доклад/реферат

7. Indicative report – демонстративный доклад/реферат

8. Monograph report – монографический реферат

8. Report-precis – резюме, краткое изложение

9. White paper – авторитетный доклад; подробный доклад

10. Annual report – годовой доклад

11. Workplace report – производственный доклад

12. Census report – отчет о результатах переписи

13. Trip report – отчет о поездке

14. Progress report – отчет о выполнении работ

15. Investigative report – отчет о следствии по делу

16. Appraisal report – отчет об оценке

17. Bound report – несвязанный отчет

18. Scientific report – научный доклад

19. Body – основная часть

20. Conclusions – выводы

21. Introduction – вводная часть

22. End matter – справочный аппарат

23. Front matter – вступительная часть

**Task.** Write a summary or a report according to your scientific interest.

**PART 3.**

**CAREERS AND FUTURE JOB**

**Motivating job**

**Task 1.** Learn essential job vocabulary

**“Where do you work?”** There are many ways to answer it:

* I work at...
* I work in...
* I work **for**...
* I work **with**...

**I work at/for... (name of company)**

For example, “I work **at** Espresso English” or “1 work **for** Nike.” You can also use “for” if you work directly for a famous person: “I work **for** Tom Cruise. I’m his public relations manager.”

**I work in... a place:**

* I work in **an office**.
* I work in **a school**.
* I work in **a factory**.

**a city/country:**

* I work in **Paris**.
* I work in **France**.

**a department:**

* I work in **the marketing department**.
* I work in **human resources**.
* I work in **sales**.

**a general area/industry:**

* I work in **finance**.
* I work in **medical research**.
* I work in **consulting**.

**I work with... (things / people that are the objects of your day-to-day work)**

* I work with **computers**.
  + I’m a teacher. I work with **special-needs children**.

If you want to add more details about your work, you can say “I’m responsible for...” or “I’m in charge of...” or “My job involves...”

* **I’m responsible for** updating the company website.
  + **I’m in charge of** interviewing candidates for jobs.
  + **My job involves** giving tours of the museum.

After these phrases, use the -ING form of the verb.

In conversational English, the question “Where do you work?” is commonly phrased as **“What do you do?”** or **“What do you do for a living?”**

You can answer with one of the “I work...” phrases we just learned, or you can say “I’m a/an... (your job title).”

* I’m a **teacher.**
* I’m an **accountant.**

How do you answer this question if you don’t have a job? You can say:

* I’m **unemployed.**
* I’m **between jobs at the moment.**

Here are some other reasons you might not have a job:

* I’m a **student.**
* I’m a **stay-at-home mom/dad.**

If you work for yourself, you can say **“I’m self-employed.”** If you have your own company, you can say, **“I own a small business,”** or more specifically, **“I own a restaurant”** or **“I own a graphic design company."**

**Task 2.** Describing your job

Do you like your job? Here are some different ways to talk about how you feel about your work:

* My job is **interesting / exciting.**
* I find my work very **rewarding**. *(this means it satisfies you and makes you feel good)*
* The work is quite **challenging.** *("challenging ” can be a way to say it’s difficult, but with a positive connotation; you enjoy the difficulty)*
  + My job is **tough / tiring / demanding.**
* The work is rather **dull / boring / repetitive.** *("dull” is another way to say "boring,” and "repetitive” means you do the same type of task multiple times; there’s not much variation)*

**Task 3**. Essential employment vocabulary

When you are officially accepted into a new job at a company, you are **hired** by the company. For example, “I was **hired** by an insurance company just two weeks after graduating from college.”

When you’re hired, you become an **employee** of the company. The company becomes your **employer**. The other employees in the company are your **colleagues** or **coworkers**. The person above you who is responsible for your work is your boss or **supervisor**.

You can work **full-time** (usually about 40 hours per week) or **part-time** (usually 15-25 hours per week). A small number of companies offer **flex-time**, meaning the employee can set his/her own schedule.

In some jobs, you work **shifts** - meaning the hours aren’t the same every day; instead, you work a specific block of hours that the manager schedules. If you work **overtime**, it means you work extra hours in addition to your normal schedule.

We typically use the expression **go to work** for arriving at work, and **get off work** for leaving work. For example, “1 go to work at 8:30, and I get off work at 5.”

Your commute is how long it takes you to arrive at work by car or public transportation. For example, “I have a 20-minute commute.” Some jobs allow you to **work remotely** - that means you can work from home or another place with an internet connection, and you communicate with your coworkers by phone, e-mail, and video conferencing.

As an employee of the company, you **earn a salary** - money you receive regularly for your work. Don’t make the mistake of saying “win a salary” - the correct verb is “earn.”

If you’re good at your job, you might get a **pay raise** (or a **raise**) – an increase in your salary. You could also get a **promotion** - an increase in importance and authority. At the end of the year, some companies give their employees a **bonus** - extra money for work well done.

The opposite of “hire” is **fire** - when your company forces you to leave your job. For example, “Peter was **fired** because he never came to work on time.” Usually if someone is fired, it’s because they did something bad.

If an employee loses his or her job because of a neutral reason, like the company reducing its size, then we say the employee was **laid off**. For example, “Donna was **laid off** when her company started having financial problems.”

If you decide to leave your job, there are three verbs you can use:

* I’m going to **quit my job.**
* I’m going to **leave my job.**
* I’m going to **resign.**

“Quit” is informal, “resign” is formal, and “leave” can be formal or informal.

When an old person decides to stop working, the verb for this is **retire**. In most countries, people retire around age 65. If you’re older than that and you’ve stopped working, you can describe your current situation by saying, **“I’m retired.”**

**1. Read the text and make up your own questions according to the text.**

**The international manager**

In recent years, many companies have expanded globally. They have done this through mergers, joint ventures and co-operation with foreign companies. Because of this globalization trend, many more employees are working abroad in managerial positions or as part of a multinational team.

Although it is common nowadays for staff to work abroad to gain experience, many people have difficulty adapting to the new culture. The failure fate in the US multinationals is estimated to be as high as 30% and it costs US business $3 billion a year.

Two typical failures have been described in the journal *Management Today*. The first example concerns a German manager with IBM who took up a position as product manager in England. He found that at most lunchtimes and especially on Fridays, many members of staff went to the pub. “I stopped that right away”, he says. “Now they are not allowed off the premises. It didn’t make me very popular at the time but it is not good for efficiency. There is no way we would do that in Germany. No way”.

The second example is about American manager who came to France on a management assignment. He was unable to win the trust of his staff although he tried all kinds of ways to do so. He set clear goals, worked longer hours than everybody, participated in all the projects, visited people’s offices and even took employees out to lunch one by one. But nothing seemed to work. This was because the staff believed strongly that the management were trying to exploit them.

The German manager’s mistake was that he hadn’t foreseen cultural differences. IBM had a firm rule about drinking during working hours. It was not allowed. He didn’t understand that staff in other countries might be more flexible in applying the rule. The American manager used the ways he was familiar with to gain the staff’s trust. To them he seemed more interested in getting the job done than in developing personal relationships.

When managers work in foreign countries, they may find it difficult to understand the behavior of their employees. Moreover, they may find that the techniques which worked at home are not effective in their new workplace.

**Speaking**

**1. Make up a topic on the given theme (10-12 sentences). Choose the six most important from the list. To be a good manager you need to:**

1. like people

2. enjoy working with others

3. give orders

4. listen to others

5. make suggestions

6. judge people’s abilities

7. plan ahead

8. be good with numbers

9. make good presentations

10. persuasive

**2. Answer the questions**

1. Which of the following areas would you like to work in? (sales and merketing, finance, management, production, administration)

2. Why?

3. Which of these companies would you like to work for? (a family owned company, a multinational company, your own company)

4. Why?

5. What qualities and skills should a good manager have?

**3. Discussion on the given topics.**

1. Are you ambitious? Why or why not?

2. Do you have a career plan? Where do you want to be in 10 years’ time?

3. Which of the following would you prefer to do?

a) work one company during your career

b) work for several different companies

c) work yourself

**4. The phrases below all include the word career. Match them to their correct meanings.**

|  |  |
| --- | --- |
| 1. career ladder  2. career break  3. career move  4. career plan  5. career opportunities | a) something you do in order to progress in your job  b) ideas you have for your future career  c) period of time away from your job to, for example, look after children.  d) chances to start/improve your career  e) series of levels that lead to better and better jobs |

**Pre-reading task** *(text from http/bbcbreakingnewsenglish.com)*

**1. TRUE / FALSE:** Read the headline. **The best companies to work for**. Guess if a-h below are true (T) or false (F).

|  |  |
| --- | --- |
| a. A report listed the best companies in the world to work for.  b. The report is made once every two years.  c. Facebook was number one last year.  d. Google has a kind of pet hotel for when staff go on holiday.  e. A company called Glassdoor paints pictures.  f. Another survey said a consulting company was the best place to work  g. The consulting company has been number one for 40 years.  h. The company's mission is to help its clients around the world. | T / F  T / F  T / F  T / F  T / F  T / F  T / F  T / F |

**2. SYNONYM MATCH:** Match the following synonyms from the article.

|  |  |
| --- | --- |
| 1. every year  2. Ranked  3. Survey  4. Salary  5. Unusual  6. Released  7. Slightly  8. Career  9. Outstanding  10. Delivering | a. job  b. issued  c. strange  d. ordered  e. bringing  f. annually  g. excellent  h. a little  i. questionnaire  j. pay |

**3. Reading** (skimming the text): try to get the general idea without reading every word

**The best companies to work for**

A new report has identified the top 25 companies in the USA to work for. The report comes out every year and always has some surprises. It ranked the best places to work in 2014 by taking a survey of employee satisfaction. Top of the list was Google, which has become famous for its excellent working conditions. Google knocked Facebook off of the number one position. A Google software engineer earns an average salary of $119,000 a year. He or she also gets free access to a gym, laundromat, sports facilities and a place which looks after their pets when the employee goes on holiday. One ex-employee said Google staff are so happy that it is unusual for anyone to take time off.

Another survey released at the same time shows a slightly different picture. the careers website Glassdoor asked employees to rate how happy they are with their company, career opportunities, pay, culture, and values. it found that the consulting firm Bain and Company was the best place to work. Russ Hagey, Global Chief Talent Officer at Bain and Co. said: “We are incredibly proud to be named the number one best place to work.” He added that: “ For more than 40 years, we have placed significant focus on creating an outstanding professional and personal work experience that in turn has fueled our growth anchored in a mission of delivering results for clients and organizations around the globe.”

**4. Post-reading task: Comprehension questions**

1. How mam companies were in the report?

2. What was the survey on?

3. Which company was number one last year?

4. What is the number 119,000 in the article?

5. Why don't Google workers take a lot of time off work?

6. What did a different survey show?

7. What is the name of the careers website that did the other survey?

8. Who is Russ Hagey?

9. How many years has Bain & Co. been focusing on work experience?

10. Where are the clients of Bain and Co.?

**Complete the second sentence so that it means the same as the first**

1. I am responsible for the marketing department

I am in \_\_\_ \_\_\_\_\_\_\_\_\_ the marketing department

2. My contract's only from March to June.

I have only got a \_\_\_\_\_ - \_\_\_\_\_\_\_ contract.

3. How many people do you employ in this company?

How many \_\_\_\_\_\_\_\_ do you have in this company?

4. There are some new things I need to learn for my job.

The boss is sending me on a \_\_\_\_\_\_\_\_\_ course.

5. He's got a degree, a Master's degree, and a 'B'at First Certificate.

He's got good \_\_\_\_\_\_\_\_\_\_.

6. I work for myself.

I'm \_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_.

7. Apart from my salary I also get a company car and free lunches, which is brilliant.

The \_\_\_\_\_\_\_\_\_\_ are brilliant in this job. I get a company car and free lunches.

**Tasks**

1. Write an essay. “How to be a good manager?” (qualities and professional skills) 2. Prepare Power Point presentation. **Masters’ individual study (MIS)-4:** “Time management”.

**MIS-4 “Time management”**

**Aim:** to extend master’s knowledge about time management in different cultures

**Introduction:** Attitudes to time may differ between different cultures in often quite significant ways. For example, being late for an appointment, or taking a long time to get down to business, is the accepted norm in most Mediterranean and Arab countries, as well as in much of less-developed Asia. Such habits, though, would be anathema in punctuality-conscious USA, Japan, England, Switzerland, etc.

**Instructions:**

1. You will have to choose 2 countries and do research on their attitudes to time.

2. Use any materials available in libraries and internet. Do not forget to make a list of references.

3. Prepare a Venn diagram based on your research findings showing the similarities and differences of two cultures in terms of time management. The work can be made in pairs or individually.

4. Presenters will be given 5-6 minutes to report to the whole class.

5. Students in the class are welcome to ask questions and involve in the discussion related to the topic under study.

**Tips:**

Time management is best described in terms of: (1) arranging appointments (business meetings) (2) the pace of life (slow-paced, fast-paced cultures); (3) chronemics (monochromic, polychromic).

The presentation weighs **10** points maximum.

**EVALUATION CRITERIA:**

|  |  |  |
| --- | --- | --- |
| ***MIS-4*** Assessment scale | Number of points | |
| Max | Yours |
| Content / critical analysis of a business culture with special emphasis on organizational behavior, values, beliefs, norms, and communication patters | 3 |  |
| Language accuracy / organization, wide business vocabulary, versatile grammar, intelligible pronunciation, fluency | 3 |  |
| Visual support / graphs, charts, logo, letterhead, pictures, photos where possible, list of references | 2 |  |
| Time management, body language, interaction with audience and overall impression | 2 |  |
| Overall | 10 |  |

**Job interview**

**How to Pass a Job Interview**

Interviews are sometimes your one and only chance at making a good first impression and sell yourself as a viable candidate for a job. Spending a bit of time and effort preparing for the interview can be the deciding factor in whether or not you make it to the next round, or get the job. Learn to plan for success, approach the interview properly, and avoid common mistakes in job interviews to give yourself the best chance of getting a fresh start.

**Getting prepared**

**1. Do some research about the company ahead of time?** Youwill make an impression as a serious candidate if you come to the interview with some background knowledge about the company and the direction in which it’s heading. Try to figure out the goals of the business or the organization that you’re applying for a job with, getting some sense of their style and the way they situate themselves against their competitors.

* Focus on using the vocabulary' that shows up on the company’s website. If you’re applying for a serving job at a “farm-to-table” restaurant, you should probably be familiar with what that means. If you’re applying to work as an editor with a holistic magazine, you need to do some research into holistic medicine.
  + Knowing your interviewer’s name and some details about that person’s role in the company can help you have a more conversational dialogue during your interview, which often leads to the interviewer forming a more positive impression.

**2. Anticipate and practice your answers to common interview questions.** The most stressful part of the job interview is figuring out how to answer the questions that you’ll be asked. What does the interviewer want to hear? Trying to do some digging and anticipate possible questions will help you practice your answers beforehand. Come up with answers that are sincere, but still reflect positively on you as a candidate. Frequently asked interview questions and possible answers include:

* What do you know about this company?
  + Why are you a good fit for this company?
  + What do you bring to a team?
  + Describe a time when you overcame a challenge at work.

**3. Come up with a good strength and weakness.** What is your most difficult work-related challenge? What is your biggest strength? Biggest weakness? These are some of the most commonly asked interview questions, and the interview is the last moment you want to be struggle for a good answer. You’ll be asked this question in almost every single job interview.

* Good answers to these question are sometimes couched in self-praise: “I’m very organized when it comes to my work and my schedule, but you’d never know it if you saw my desk” is a good answer. Likewise, “I tend to take on responsibilities but sometimes forget to ask questions when I need help” can be honest and effective.

If you’re applying for a leadership position, it’s important to emphasize your leadership qualities and your self-reliance. A good strength might be, “I’m good at communicating my vision to people and getting others excited about a common goal.” A good weakness might be, “I have to remember to slow down and take on one project at a time. Sometimes I want to do too much.

If you’re applying for an entry-level position, the interviewer won’t be looking for you to prove leadership credentials. A good strength might be, “I follow directions extremely well and I’m a fast learner. If I don’t know how to do something, I’m always keen to learn and improve, so I won’t have to ask twice.” A good weakness might be, “I’m not always the best idea person, I’m mostly happy to help other people implement their ideas.”

**4. Bring some good questions of your own.** Interviewers will often ask if you have any questions during or after the interview, which can throw a lot of first-time interviewees. Asking a question shows you are engaged in the conversation, so come up with a list of questions to ask so you are prepared in case you can’t come up with one quickly when you are prompted. Good questions might include:

* How do you like working here?
* What does someone need to be successful at this company?
* Who will I be working with most closely?
* What do the day-to-day operations consist of?
* Is there room for growth with this company?
* What’s the turnover like for this position?

**5. Avoid cliches.** Interviews are a time to let your potential employer get to know you, the real you, not a pumped-up, cliched version of yourself who’s giving canned answers to Try to get a job. The purpose of the interview isn’t to suck up, show off, or tell the interviewer what they want to hear. The purpose is to give sincere answers, not to insult the interviewer’s intelligence. Avoid interview lines like ”My only weakness is that I’m a perfectionist” or “This company needs someone like me to turn it around.”

**6. Complete all necessary documents ahead of time.** Depending on the interview process, it is really helpful if you bring along an extra copy of your resume, references, work portfolio, and a cover letter, if applicable. Look over all documents for typos and grammatical errors. If you have time, give them to someone else to review and catch any silly mistakes you may have missed.

* It’s also important to familiarize yourself intimately with your resume, CV, and other application materials. It can look suspicions if you have trouble recalling content from your resume, so you want to make sure all names, dates, and described responsibilities are clear.

**7. Dress the part.** Pick out an outfit that makes you look professional and feel confident, as well as something that matches the business to which you’re applying.

* In most cases dark-colored suits are appropriate for interviews, unless you are interviewing for a job with a very casual dress code, in which case dress pants and a clean, collared shirt are appropriate.

**Nailing the interview.**

**1. Get there on time.** Nothing looks worse than arriving to a job interview late. Show up at the appropriate time, ready to go. If your interview is in an unfamiliar area, drive to the location the day to make sure you aren’t late because you got lost. Aim to arrive no fewer than 10 or 15 minutes before your assigned interview time to factor in unknown causes of delay like traffic conditions, etc.

* + Keep in mind though, while it’s important to show up on time, showing up too early can be frustrating for potential employers. If they told you to be there at a specific time, that means they want you there at that time, not 30 minutes before. If you want to make a good impression, follow instructions specifically.
  + Stay busy as you wait, writing notes or reviewing the job description and company information. Keep documents and materials in your left hand so you are prepared to get up and shake hands as soon as the interviewer comes out to greet you.

**2. Be yourself.** At an interview, you’ll likely feel nervous and want to perform your best. It’s a scary situation, no doubt about it. But Try to remember that you don’t need to put on an act to get a job. You just need to be yourself. Focus on remaining calm and listening closely to the conversation as it unfolds. Be yourself

* Interviewers expect you to be nervous. Don’t worry about saying so. It might help to get it out of the wav and get to know your interviewer on a more personal level, which can help you to stand out. Don’t be afraid of small talk.

**3. Listen closely and pay attention.** One of the worst things you could do in an interview is have to ask an interviewer to repeat their question because you weren’t paying attention. Don’t disqualify yourself by letting your mind wander. Most interviews won’t take more than 15 minutes, and certainly never longer than an hour or so. Focus on the conversation at hand and respond actively.

**4. Sit up and keep your back straight.** Lean forward and listen closely during an interview, using open and interested body language. Look at the interviewer when you’re talking and when they are speaking.

* A great interviewing trick is to look at the bridge of the interviewers’ nose, between the eyes. They will have no idea you aren’t making eye contact and it will help you relax a little. Try it with a friend, you will be amazed.

**5. Think before you speak.** Another common mistake in an interview is talking too much and too quickly. You don’t need to fill awkward silences with chatter. Especially if you’re a nervous talker, don’t feel the need to fill the space with talking. Sit back and listen. Don’t give away too much.

* When you’re asked a question, you don’t need to have an immediate answer. In fact, it can be a turn off for an interviewer to feel as if you’ve given no thought whatsoever to a complicated question. Slow down and think about it. Pause, say, “That’s a great question, let me think about a good answer.”

**6. Be willing to do what it takes.** Your go-to answer in a job interview should be “Yes.” Are you willing to work nights and weekends? Yes. Are you comfortable taking on multiple clients? Yes. Do you have experience working in a high-paced environment? Yes. Most jobs provide enough on-the-job training for skills that are essential to conducting the day-to-day operations that you’ll be able to pick up anything you’re unfamiliar with after you get the job. Don’t disqualify yourself ahead of time. Be agreeable and sort out the details after you get the job.

* Don’t lie about some things. Being willing to do what’s necessary for the position doesn’t mean that you should stretch your experiences or tell fibs that’ll get you outed the first day on the job. If you’ve never cooked a meal in your life, you shouldn’t tell the kitchen manager you’re a great cook.

**7. Sell yourself in conversation.** In general, the purpose of the interview is just to get to know you as a person. They’ve got your resume, your experiences, and your essentials on paper. What they don’t know is you.

* An interview isn’t an interrogation or an argument. It’s a conversation. Participate in it. When the interviewer is talking, pay close attention and listen to what they are saying, listen, and respond honestly. Some interviewees are thrown when interviewers don’t instantly launch into a series of questionnaire-style questions.

**8. Take notes.** Carry a pen and paper in your portfolio or briefcase to jot quick notes if necessary. You may also bring extra copies of your application documents and questions list to refer to if needed.

* Note-taking makes you appear engaged and well-organized. It also helps you remember important details and names, which can be useful later in the interview, or when you are making follow-up contact. Be careful to only take brief notes when necessary to take any at all, since extensive note-taking can be distracting.

**9. Follow up.** It’s usually a good idea to get in touch shortly after the interview to keep your name somewhere in the conversation. Unless you’ve been explicitly told not to, make contact to follow up on your interview. Calls are usually discouraged, but emails or other correspondence would be a good idea. Since many companies have a lot of references to check, make sure your references are ready to receive the call and get back to the employer.

* Summarize important details of the interview, using your notes to refresh your memory. Make sure to thank the interviewer for the opportunity, and mention that you look forward to hearing from the company soon.

**Avoiding [Common mistakes]**

**1. Don’t show up with coffee.** For some reason, lots of people think bringing a to-go cup of coffee to a job interview is a great idea. To an interviewer, this looks informal at best and disrespectful at worst. You’re not on your lunch break, so treat yourself to a latte after the interview, not before. Even if the interview is early, or you might end up waiting a long time to get through with it, don’t show up with a cup of coffee. The plus side is you won’t have to worry about spilling it.

**2. Turn off your phone and put it away.** Biggest faux-pas of the mobile phone age? Using yours in a job interview. Never ever take your phone out and look at it at any point in the job interview. As far as your interviewer is concerned, you should be a troglodyte who’s never even heard of an app. Turn your phone all the way off, keep it in your car, and never, under any circumstances, give the interviewer the impression that a text message takes precedence over getting this job.

**3. Don’t talk about money.** In the interview, it’s not the time to ask about benefits, the possibility of a raise, or really even bring up the topic of money. If you’re applying for a job, it’s time to focus on your skills and qualifications.

* Sometimes, you’ll be prompted to provide a base salary requirement for the job. The best answer for this is that you’re willing to work for the lower end of the average salaries for your position. Express that you really want the job and that you’ll be fine with what’s being offered in the legal limit.

**4. Treat your interview like a conversation, not an interrogation.** Never get defensive in an interview, even if you feel like you’re not getting on perfectly with the interviewer. It’s supposed to be a conversation, so try to assume the best in people. Nobody is trying to antagonize you on purpose. Treat it as a chance to prove yourself and come up with a good explanation, not a defensive snark.

**5. Don’t knock your previous boss.** Making petty comments about previous coworkers, superiors, or other job in general should be avoided. Even if you’re applying for a rival business, avoid painting yourself like someone with a grade, or like someone who’ll be difficult to work with. It’s bad form to gripe about your previous job.

* If you’re asked why you’re leaving your current job, say something positive. “I’m looking for more out of my work environment and I’m excited about getting a fresh start. To me, this looks like a great place to do it.”

**6. Avoid pre-interview cigarettes and alcohol.** Even if you indulge in the occasional smoke, avoid smoking before a job interview. A recent study revealed that up to 90 percent of employers would hire a nonsmoker over a smoker of equal qualification. Right or wrong, smoking makes the interviewee looks nervous.

* Likewise, having a few drinks to soothe tense nerves should always be avoided. You want to be sharp and on point, not sloppy, Interviewers will expect you to be nervous. It’s a job interview.

**7. Don’t be afraid to reveal yourself. Billionaire mogul Richard** Branson claims to hire primarily based on personality, as opposed to experience or quantifiable skills. Each job is different and the essential aspects of the job can be learned. Focus on selling yourself and letting your true personality shine through, not on trying to be something you’re not.

**Interview tips and tricks**

|  |  |
| --- | --- |
| 1 | 2 |
| Do | Don’t |
| Start preparing early. Take as much time as you have available to you. | Wait until the last minute. |
| Do your homework. Learn as much as you can about the company and the interviewers. | Go in knowing nothing about the industry or the position for which you’re interviewing. |
| Be prepared. Anticipate likely interview questions and plan your answers. | Be caught off guard. A lack of preparation makes you seem like you don’t want the job. |
| Make a good first impression. Show up early and looking well dressed and well rested. | Arrive late or looking disheveled. |
| Practice everything from your handshake to your introduction. | Fumble for words or sound unsure of yourself because you haven’t rehearsed. |
| Answer questions completely honestly. Paint yourself in the best light, but remain humble and brief. | Exaggerate or lie about your accomplishments. Droning on about your achievements can make you look phony. |
| Remain polite, respectful, and positive. | Badmouth former employers or complain about prior jobs you’ve held. |
| Have educated questions for the interviewers. | Ask questions for the sake of asking, or ask something you could have found out on your own. |
| Follow up with a thank-you note after the interview and an email later if you haven’t heard from them. | Hound the hiring manager, as it could hurt your chances. |

**Interview Strengths, Weaknesses**

|  |  |  |
| --- | --- | --- |
| **Types of Strengths** | **Examples** | **Sample Answer** |
| Job-specific | - computer skills  - technical training  - product/industry knowledge | “One of my greatest strengths is my proficiency with Microsoft Excel. I have a tremendous amount of experience working with the program.” |
| Transferrable | - proficient in a language  - written or oral communication skills  - problem solving | “I have often been praised for my ability to come up with out-of-the-box solutions to problems facing my team or work group.” |
| Personal characteristics | - punctual  - self-motivated  - adaptable | “I am excellent at adapting to changes and becoming comfortable in new settings. This has benefitted me greatly in my career as a travel nurse.” |

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| **Types of Weaknesses** | **Examples** | **Sample Answer** |
| Those unrelated to the position you’re seeking | - fear of speaking before groups, if the job doesn’t require it  - lack of computer skills, if the job doesn’t require the use of one | “I have learned through other jobs I’ve held that I am not a gifted salesman. That’s one of the reasons I am looking forward to the potential to change careers.” |
| Those that can be turned into positives | - lack of attention to detail, as a result of seeing too much of the big picture  - difficulty multi-tasking, due to an intense focus on the task at hand | “Because I concentrate so much on what I’m doing, I often have a hard time juggling interruptions and other things that come up.” |
| Those that you’re working to improve | - learning to delegate and spend less time on assignments  - spelling | “I’m such a perfectionist by nature that I sometimes spend much more time on tasks that necessary. As a result, I’ve learned to keep a large clock on my desk. By giving myself small deadlines all day, I make sure I don’t waste too much time.” |

**Read 10 top interview questions and answer them. Prepare role-play ’’Job interview”.**

1. Tell me about yourself

2. Why should we hire you?

3. What is your greatest strength?

4. What is your greatest weakness?

5. Why do you want to work for us?

6. Why did you leave your last job?

7. What is your greatest accomplishment?

8. Describe a difficult work situation and what you did to overcome it

9. Where do you see yourself in 5 years?

10. Do you have any questions for me (the interviewer)?

**Task:** Prepare Power Point presentation. **Masters’ individual study (MIS)-5:** “Success story”.

**MIS-5 “Success story”**

**Aim:** to increase the masters’ awareness about cultural diversity in the business world.

**Instructions:**

1.Interview KazNU a graduate or a professor asking about academic success

2. Use any materials available in the internet to form appropriate questions. Do not forget to make a list of references.

3.Prepare a video presentation of your interview. The video presentation should be done individually.

4.Presenter will be given 5-6 minutes to report to the whole class.

5.Students in the class are welcome to ask questions and involve in the discussion related to the topic under study.

**Tips:**

Before interviewing get as much information as you can to get appropriate information. Only then create list of questions. Success is more about positive experience, so try' to ask more positive questions. Interviewing should be no longer than 10 minutes.

The presentation weighs **10** points maximum.

**EVALUATION CRITERIA:**

|  |  |  |
| --- | --- | --- |
| **MIS-5** **“Success story”** | Number of points | |
| Max | Yours |
| Content / insightful story with detailed, suitable questions, creative organization of topic leading | 3 |  |
| Language accuracy / organization, wide business vocabulary, versatile grammar, intelligible pronunciation, fluency | 3 |  |
| Visual support / graphs, charts, logo, letterhead, pictures, photos where possible, list of references | 2 |  |
| Time management, body language, interaction with audience and overall impression | 2 |  |
| Overall | 10 |  |

**Making Presentations**

**I. Introduction**

The study of speech communication will engage you in one of the oldest academic subjects known “Rhetoric”, as the ancient Greeks called it. Rhetoric - or the art of speaking persuasively - has been one of the most important subjects on the Western European school curriculum from classical times. Classical rhetoric covers all aspects of speaking in public - choice and arrangement of material, style and delivery. In modem usage the term has been somewhat trivialized and is now often used to describe practical skills and strategies that public speakers and presenters use.

Success in many careers depends on good speech communication skills. These include careers in administration, government, public relations, politics, education, sales, and private industry. The dictionary definition of presentation is “an event at which a new product or idea is described and explained”. It is therefore essential for students looking for employment in business to develop skills, language and techniques needed to present in public with confidence if they wish to succeed in their careers. Presentations are high-risk, high-visibility activities. Success and failure, can have a significant effect on your career. The ability to speak English is no guarantee that you can present in English. Presenters need presentation skills and a level of professionalism. There are many similarities between written and spoken presentations: both are designed to communicate in an ordered way. But spoken presentations carry additional risks, because speaking to an audience takes place in real time. You cannot try different versions or go back and correct something you do not like. You cannot afford to go blank. And you have an audience there who will let you know if they do not like what you are saying.

The common factors contributing to an unsatisfactory presentation (presentational problems) are the following:

* Content inappropriate to audience (the audience know the content already; the audience don’t want to know the content; the content is so muddled that it is impossible to follow)
* Pace inappropriate to difficulty (the speaker goes slowly through the obvious;
* the speaker rushes through complex arguments; the speaker jumbles his or her
* notes, and spends most of the time trying to find out where they are);
* Poor delivery (the speaker is inaudible; the speaker’s voice is a hypnotic monotone);
* Poor visibility of visual aids (PowerPoint projections are illegible; half the slides are upside down or out of order; the slides are overloading)

The possible list is almost endless, but the above are common faults.

This course is devoted to showing you what is necessary if you are to avoid the risks presentations involve, and make the most of the opportunities that they offer. While it is beyond the scope of this course to turn you into a brilliant speaker, becoming good should be well within your reach. Although bad presentations abound, and you will doubtless have sat through many, the basic principles of effective presentaion (presentational strengths) are remarkably simple:

* Clear structure
* Appropriate content
* Interesting delivery
* Good illustrations of points
* Audibility and visibility
* Keeping to time

By following these principles, you should be able to create a professional impression that will serve you well on your course and in your future job.

**Vocabulary**

*go blank* = be suddenly unable to remember something

*muddled* = not clear or effective

*pace* = the speed at which something happens or is done

*jumble* = mix things in a confusing or untidy way

*be within the reach* = used for saying that someone can do something

**II. Analyzing your Audience**

You should start preparing for your speech by looking at your future audience. Your job is to get as much information about your audience as you can. This information will help you to prepare a speech which is relevant and interesting to your listeners. Thinking about your audience is the key to good public speaking. If you are preparing a presentation, start with the question: Who are these people? It’s the key to success.

Whether they are strangers or colleagues, they have one thing in common: they expect you to impress them for the next 15-20 minutes. And the best way to do so is to focus on their favourite subject – themselves. So begin by defining who these people are and what they expect. Here are ten questions to ask yourself.

1. What kind of language do these people use?

If your audience is from a particular industry, what terminology does it understand best? The audience dictates your choice of words, but remember, you should always make your language clear and concise, especially if the language is not your mother tongue.

2. Why were you invited to make this presentation?

Your knowledge of their problems is probably why you were invited to speak.

They expect new insights, a different point of view, and ideas that they can take away and use so that they feel their time was well spent listening to you.

3. Can people hear you?

Speak loudly enough to make your voice carry to the furthest listener. No one wants to listen to someone who mumbles and who does not speak with conviction. As a presenter, the ability to pace your speech and use your voice to create impact is the most important skill you need. You will be more effective if you are in control of your voice by your use of stress, pausing, intonation, volume, and silence.

4. How should you look at the audience?

Make direct eye contact. Try convincing your audience you are talking to them personally. It also makes you feel that you have made contact with them as individuals. Never talk down (or up) your audience. Treat them as equals, no matter who they are.

5. Should you use notes?

Yes, make an outline, perhaps on small cards, and consult them as you speak. This forces you to organize your presentation in a logical, coherent way and not wander off the points.

6. Are they friends, colleagues, customers or total strangers?

Define who these people are. Define their essential features and motivations. What work do they do, what is their level of education, what kind of language do they use, what problems and opportunities might they have? Address their goals, their needs, their concerns.

7. Should you use any visual aids?

If they make your speech easier to understand, yes. But make them clear and simple. Don’t laboriously read out aloud what is written on your visuals. Make sure that everyone can see them, even from back of the room.

8. How long should the presentation be?

The best thing is to take only as much time as is necessary. The only thing worse than being long and boring is being too short and not fully understood.

9. What arc the audience’s feelings and opinions toward the topic of your speech?

For the purpose of persuasive speaking it will be necessary to learn as much as possible about how they feel and why they feel that way in order to do a good job preparing your persuasive speech.

**III. Presentation Structure**

Every public speech (presentation) needs a subject and a purpose. Before you can begin gathering and organizing information for your speech, you must select a topic and clearly understand its purpose. For example, your purpose might be to inform people about an unfamiliar subject, or to persuade them to change their opinion about an issue. The main purpose of speaking to inform is to present information to an audience so that they will understand and remember it. Your goal in making an informative talk is to state your ideas as simply and as clearly as possible.

The major purpose of a persuasive speech is to get others to change their feelings, beliefs, or behavior. Your goal in making a persuasive speech is to convince your listeners to do what you want them to do or to change their opinion about something to agree with your. Presentations need to be very straightforward and logical. It is important that you avoid complex structures and focus on the need to explain and discuss your work clearly. Think about how you will organize your content. Your presentation should have a clear, coherent structure and cover the points you wish to make in a logical order. Because an audience cannot turn back the page and check what you wrote, it is very easy for them to lose the thread of your spoken argument. Structure is therefore even more important in presentations than it is in written reports, and needs to be emphasized at frequent intervals. The old advice “tell them what you are going to say, say it, and then tell them what you have said” still holds good. An ideal structure for a presentation includes:

* a welcoming and informative introduction;
* a coherent series of main points presented in a logical sequence;
* a lucid and purposeful conclusion.

It is possible to break these three broad sections down further.

**1. Introductory Section**

The introduction is the point at which the presenter explains the content and purpose of the presentation. This is vitally important part of your talk as you will need to gain the audience’s interest and confidence. Use the introduction to welcome your audience, explain your objectives, introduce your topic/subject, indicate the main points you will be making and how you will structure these, provide guidelines on questions, say how long you will be talking for.

Key elements of an effective introduction include:

* a positive start: “Good afternoon, my name is ...” (who)
* a statement of what will be discussed: “I’m going to explore ...’’(why)
* a statement of the treatment to be applied to the topic (e.g. to compare, contrast, evaluate, describe): “I’ll be comparing the four main principles of...” (what)
* a statement of the outcomes of the presentation: “I hope this will provide us with ...” (why)
* a statement of what the audience will need to do (e.g. when they can ask questions or whether or not they will need to take notes): “I’ll pass round a handout that summarizes my presentation before taking questions at the end”. (how)

Experts in communication say that the first three minutes of a presentation are the most important. They talk about “hooks” - simple techniques for getting, the immediate attention of the audience. Here’s how the experts suggest you get the immediate attention of the audience:

1. Give them a problem to think about.

2. Begin your speech with some amazing facts.

3. Give them a story or personal anecdote.

4. Begin your speech with a well-known quotation.

5. Address the audience’s needs and concerns by telling them what benefits they will gain from listening to you.

6. Ask something and then go on to answer it yourself.

**2. Main section (the body of your presentation)**

Now that your listeners know exactly what you are going to talk about or what your specific persuasive topic is it is time to present your information or present support and evidence which will convince them to agree with you. Be sure to present the main parts of your speech just the way you said you would. The sequence of your main points should be directly influenced by the purpose of your presentation. Always remember that the aim is to communicate issues in manageable sections or building blocks, helping the audience to piece their understanding together as you work through your material. After you have identified your main points, you should embellish them with supporting information.

For example, add clarity to your argument through the use of diagrams, illustrate a link between theory and practice, or substantiate your claims with appropriate data. Use the supporting information to add colour and interest to your talk, but avoid detracting from the clarity of your main points by overburdening them with too much detail. Make your presentation easy to comprehend by using sequence words (firstly, finally) Use them to connect your ideas and give structure to the whole argument. When presenting orally, you will need to give additional pointers to internal structure within your main body. When you have finished dealing with one point, signal this by a brief summary, of the point just made, and then a short statement of the point you are about to start. You can do this easily and effectively, using simple phrases as “signposts” (transitions or sequencers) to help the audience negative their way through your presentation.

They can help divide information up into subsections, link different aspects of your talk and show progression through your topic. Importantly, transitions draw the audience’s attention to the process of the presentation as well as the content.

**3. Conclusion**

The conclusion is an essential though frequently underdeveloped section of a presentation. This is the stage at which you summarize your key points and purpose of your talk, again using visual aids if appropriate, emphasize your recommendations or conclusion, thank your audience, and invite questions. The summary should not be too long as you will lose your audience’s attention, but detailed enough to cover your points. A good summary reminds your audience about what you said and helps them to remember your information. After a summary, you are ready to conclude with a statement that will leave your audience thinking about what you said. Never end abruptly or by saying “That’s all”. The final words of your speech are the ones your audience will remember. Important elements of a conclusion are:

* A review of the topic and purpose of your presentation: “In this presentation I wanted to explore ....”
* A statement of the conclusions or recommendations to be drawn from your work: “I hope to have been able to show that the effect of...”
* An indication of the next stages (what might be done to take this work further?): “This does of course highlight the need for further research in the area of...”
* An instruction as to what happens next (questions, discussion or group work): “I would now like to give you the opportunity to ask questions ...”
* A thank-you to the audience for their attention and participation: “Thank you very much for listening”.

The techniques for concluding speeches are the same as those for beginning speeches.

**4. Putting your speech together**

The question is “which part of a speech do you prepare first?" You should begin with the body of your speech. After the body is prepared you should write the conclusion, and finally the introduction.

***Step one: Preparing the Body of Your Speech.***

The body of your speech will contain the outline of the major ideas you want to present. It will also have the evidence or information that supports and clarifies your ideas.

*First:* List the main headings or subtopics related to your subject.

Write down the main headings which might be included in your speech. Write them as you think of them. Some ideas will be important, some will be insignificant. At this time, just concentrate on writing all the ideas you can think of that relate to the subject and purpose of your speech.

*Second:* Narrow down your list of main headings.

Review your list of main headings carefully. Your goal should be to come up with three of four main headings that will develop the subject and purpose of your speech. The bad presentations are where people have tried to give too much information in too much detail and taken too long over it.

*Third:* Order your main headings logically.

Try to organize your main headings so that each major point leads naturally into the next one. For example, if your speech were entitled “Applying for a Job”, you would-not talk about the actual interview before discussing the need for a resume.

A more logical order of main headings might be:

1. Finding the Desired Position

2. Writing a Resume

3. Scheduling Appointments

4. Behavior During the Personal Interview

*Fourth:* Develop Your Main Headings.

The main headings are the skeleton upon which your speech will be built. You must develop and support them. If the main headings are properly supported by factual information, logical proof, and visuals, your audience will understand and remember your speech.

***Step Two: Preparing the Conclusion of Your Speech.***

When you have finished dealing with the main body, signal clearly that you are now ready to finish your presentation. Make sure you give a clear logical finish making your summary, giving your conclusion and making your closing remarks. Your conclusion section should follow naturally from your main body.

***Step Three: Preparing the Introduction to Your Speech.***

This is a crucial part of your presentation. It serves as a useful orientation to the reader.

**5. Outlining**

When you have gathered enough information to prepare the introduction, body and conclusion of your presentation, you are ready to organize it through the use of an outline - that is, a detailed plan of your presentation.

**1. The purpose of an outline**

1. An outline assures that you have organized your ideas.

2. An outline helps you remember all your information.

3. An outline makes it easy for you to deliver your speech.

4. An outline helps you to stick to the subject of your speech.

**2. Preparing an outline**

When you write an outline, you list very briefly and in the proper order the ideas you wish to include in your presentation. Then, you write the presentation following the outline. If your outline is well arranged, your presentation will be well arranged.

The key to outlining is to identify main topics and break them down into subtopics. A good outline meets three basic requirements:

1. Each idea must relate to and help prove the main point.

2. Each unit of the outline should contain only one idea.

3. Ideas should not be repeated or overlap each other (express the same ideas).

**IV. Exploiting Visual Aids**

If you have a lot of complex information to explain, think about using some charts, diagrams, graphs on an overhead projector or flipchart. There are some things that can be conveyed far better visually than by words alone. Relationships can be more clearly diagrammed, trends clearly shown via graphs. If your presentation is a lengths one it is worth varying your aids. You may wish to use a mix of diagrams: some could be on prepared slides, others drawn on a board or flipchart at an appropriate point in your talk. Handouts that you want people to look at while you talk, such as a detailed table that you wish to discuss at length, can usually be distributed as people take their seats. When you give a presentation in a foreign language, visuals are essential for effective communication. It is therefore important for students if they wish to succeed in their careers to develop skills in interpreting information presented in visual aids.

**1. Reasons to use Visuals**

* Present specific information that can be readily understood and remembered.
* Emphasize important facts and figures.
* Present supporting data that are helpful in making analysis and drawing conclusions.
* Reduce the amount of talking you have to do.
* Add interest to the material.

**2. Guidelines about using visual aids to maximum effect.**

1. Your visual aids must be large enough for everyone to see.

2. Keep charts, maps and graphs very simple. Don’t try to show too many details in one visual aid. Let your visuals speak for themselves. A good visual is like a good newspaper headline-it should make people want to find out more.

3. Do not pass out objects or papers during your speech. If people are looking at objects or reading papers, they will not be listening to what you are saying.

4. When describing very detailed visual aids don’t quote precise figures. Give approximate figures and point out the overall trends and developments. Include precise figures and detailed descriptions in a handout or report given out before or after your talk.

5. Look at your audience - not at your visual aids. When you are showing a picture, graph, etc., be sure to maintain eye contact with your listeners.

6. Never compete with your visuals. When showing a visual, keep quiet and give people time to take it in, then make brief comments only.

7. When you’ve finished using your visual aids, put them away or switch of your projector.

8. If you are giving a presentation with Power Point or something of that nature, make the information on your screen very simple. The rules of presentation are the same all the time. ***Five words per line, five lines per slide, five slides per presentation is the target.***

**3. Using PowerPoint**

Computers make it remarkably easy to produce impressive overheads, usually using PowerPoint. It offers a number of significant advantages, particularly professional appearance, and flexibility. You can revise your presentation at the last minute, and easily tailor it to a particular audience. You can incorporate relevant tables and graphics. If you are carrying your laptop anyway you do not need to carry anything additional. PowerPoint is a tool you can use to communicate your ideas effectively through visual aids that look professionally designed yet are easy to make. You can produce slides for your presentation and room for notes, at the press of a button print audience handouts, print an outline These advantages are clear. There are less obvious, but perhaps more serious, hazards with PowerPoint. The ease of generating slides on a computer leads some presenters to use far too many slides so that their audience retains nothing but a blurred impression of an endless series of visuals which they have had no time to absorb. Now that everyone can use PowerPoint, being expert in its use is less impressive than once it might have been. Remember that you are trying to communicate effectively. Be selective and use slides when you need to.

**VII. Suggestions for Delivering Your Presentations**

Your speech is more than just the words you use.

HOW you say something is just as important as WHAT you say. Good delivery involves several important aspects. The following basic techniques for delivering a speech will help you to improve your own individual style of public speaking.

1. Stage fright: First, let’s face one problem about speaking in public which concerns most beginning students-nervousness. Most people are nervous about public speaking. The good news is that you can learn to control your nervousness rather than let it get you down. How will you be able to reduce your nervousness? The best is to be really well prepared. If you know that your topic is interesting, and that your material is well organized, you have already reduced a major worry!

2. Eye contact: You should not look at the floor or out the window because this will give the audience the idea that you are not interested in your topic or in them. The idea is to give the impression that you are talking to each individual in your audience. You will find that if you look directly at your audience, their nods, gestures, and smiles will let you know that they understand you. This positive feedback will make you feel better and less nervous.

3. Speak with enthusiasm: Enthusiasm is being lively and showing your own personal concern for your subject and your audience. If you are truly interested in your topic, your delivery is certain in enthusiastic and lively.

4. Vary your speaking rate: Your words should not be too fast or too slow. If you speak too slowly you will bore your audience. If you speak too rapidly you will be difficult to understand. Adapt your rate to the context of your speech. For example, if you are explaining complex information, slow down. If you are enthusiastic, you should speed up. This change of pace is very important.

5. Make it easy for people to understand: Speak clearly, without gabbling. Use short sentences and straight forward language. Use the sorts of words and phrases you use for speaking, not those you would use in writing (the large difference between the two explains why it is so difficult to follow a speaker who is reading)

6. Try to be interesting: Use visual aids to sustain interest, and vary your pace. Relevant jokes can be effective if used sparingly. Avoid jokes completely if you have any doubts about your skill in telling them.

7. Use detail sparingly: If detail is important, have a written handout for distribution before or after (not during) your presentation. Handouts distributed during your talk will lose you your audience.

8. Keep any notes brief: It is reassuring to have notes, especially if you are nervous. But keep them brief, and number them clearly so that if you do drop them in your anxiety, or they mysteriously rearrange themselves, you can reorder them easily. Cards are easiest to handle. Mark the point at which you will be using visual aids to what is appropriate. The ease of generating slides on a computer leads some presenters to use far too many slides. There is a risk of giving a very dull presentation, and talking to your computer screen rather than your audience.

9. Avoid over-running the stated time: Not keeping to your allotted time is a sure sign of ineffectiveness. Audiences plan their time, and do not like to have these plans disrupted.

10. Practice: You know now the basic principles of effective delivery and should realize that the actual delivery of your presentation is just as important as having a well-organized and developed speech. However, studying this information won’t guarantee an effective speech presentation. You must rehearse and practice the speech you have prepared. For best results, you should begin practicing days before your actual presentation.

**Vocabulary**

*get you down* = make you feel unhappy

*gabble* = talk very quickly in a way that is difficult for people to understand

*sustain* = make something continue

*sparingly* = using or giving only a little of something

*allotted* = given officially for a particular purpose

*Exercise 5. Compare the following presentations, discuss*

a) what is wrong with the first one

b) in what ways the second one is better

**Presentation 1.**

Right. Good. Well, perhaps I’ll start, shall I? Can you hear me all right? Good. Now ... erm ... probably the most important thing I've got to say is that ... well, the company’s results are looking pretty good this year. Have you all seen the graph of sales figures? No? Well, I’ve got one here. There you are. Can you see this all right at the back? No? Well, you’ll have to take my word for it, then. Results arc good. Yes. Very good, actually. But, anyway, I’ll tell you a bit more about that in a minute. Now, where was I? Um ... let’s start with what's happening at the moment. Would that be a good idea?

**Presentation 2.**

Good morning, ladies and gentlemen. I’m here today to tell you about our company’s financial position. I’ve divided my presentation into four parts. Firstly, I want to talk about the current financial situation. Secondly, I’d like to examine our performance over the past year. Thirdly, I’ll look at our prospects for the next twelve months. Finally, I’ll make some recommendations. I’ll be happy to answer questions at the end of my presentation. Right. I’d like you to look at this graph ...

**Exercise 1. Read the second presentation again and answer these questions:**

1. What is the purpose of the presentation?

2. When will the presenter answer the questions?

3.Which of the phrases below does the presenter use to ...

a) explain the purpose of the presentation (Why)

b) describe the structure of the presentation (What)

c) say when he’ll answer questions (How)

My main aim today is to tell you about our company’s financial position.

I'll be happy to answer questions at the end of the presentation.

There are four parts of today’s presentation.

I'm here today to tell you about our company’s financial position.

I've divided my presentation into four parts.

I'll take questions at the end.

**Task:** Prepare Power Point presentation. **Masters’ individual study (MIS)-6**: “Study strategy for Final Week”

**MIS-6 “Study strategy for Final Week”**

**Aim:** To develop students’ knowledge abilities in learning study strategies

**Introduction:** Strategy is a method or plan chosen to reach desired results and goals. Based on this every step is carried out by creating a detailed plan of the study. Study strategies include approaches to learning, organizing studying process, time-management, motivation, feedback and self-assessment.

**Instructions:**

1. You will have to create apian for the semester. Write 10 study strategies for Final week.

2. While creating the plan you should answer the following questions:

a) What is the study strategy in own words?

b) Why do you need study strategy?

c) How do you develop study strategy?

3. Use any materials available in libraries and Internet. Make a list of references.

4. Prepare a plan in the form of mind-map (search in Internet what mind-map is).

5. Mind-map should be illustrative and informative.

6. Mind-map can be made in pairs.

7. The presentation of min-map should last 3 minutes to perform to the whole class.

8. Students in the class are welcome to ask questions.

**Tips:**

Study strategy is presented in terms of: (1) educational process, (2) professional development and (3) personal life.

The presentation weighs **10** points maximum.

**EVALUATION CRITERIA:**

|  |  |  |
| --- | --- | --- |
| MIS-6 “Study strategy for Final Week”  Assessment scale | Number of points | |
| Max | Yours |
| Content / critical analysis of the study strategy, logicality of the plan | 3 |  |
| Language accuracy / organization, vocabulary, grammar, pronunciation, list of references | 3 |  |
| Visibility / mind-map | 2 |  |
| Time management, body language, interaction with audience and overall impression | 2 |  |
| **Overall** | 10 |  |

**PART 4.**

**TEXTS FOR READING**

**What is a DNA computer? How does it work?**

**Short Bytes:** The concept of DNA computing was first introduced in 1994. It deals with the “biochips” made of DNA that are able to perform billions of calculations at once by multiplying themselves in number. In other words, a DNA computer grows as it computes. In a recent development, the researchers from the University of Manchester have shown that the creation of this conceptual computer is possible in real life.

Long back in 1994, the concept of computing with DNA was first proposed to make calculations faster even with a small footprint. Its major highlight was the ability to multiply itself and carry out numerous calculations simultaneously. In other words, unlike a normal computer that performs calculations one after another, a DNA computer does those calculations at once by making multiple copies of itself.

Coming back to the introduction of the concept of DNA computing in 1994, it was invented by the famous cryptographer Leonard Adleman who used DNA to solve the “traveling salesman” problem. The problem aimed at finding out the shortest route between a number of cities by going through each city only once.

Adleman showed that billions of molecules in a drop of DNA had so much computational power that can simply overpower silicon and the powerful human-based computers.

In his experiment, the strands of DNA represented 7 cities. The sequences of genetic alphabets A, T, C, and G represented cities and the path. After this, when the DNA molecules were mixed in a test tube, some DNA strands stuck together and the chains of strands were the possible answers. Using some chemical reactions, *wrong* molecules were removed. What’s the latest progress? Is DNA computing going to be a reality very soon?

In 1997, the researchers at the University of Rochester developed basic DNA logic gates, which was seen as a breakthrough. Recently, a major development in the field of DNA computing was made by the researchers from the University of Manchester, which is famous for creating first stored memory electronic computer.

The researchers have shown that it’s possible to build a DNA computer that’ll grow as it’ll compute. This concept is also being called a nondeterministic universal Turing machine (NUTM).

As the DNA molecules are very tiny, a desktop “DNA” computer can utilize more processors than all the electronic computers in the world combined. “And therefore outperform the world’s current fastest supercomputer, while consuming a tiny fraction of its energy,” according to Professor King of Manchester’s School of Computer Science

In a research paper, they have described the physical design for an NUTM that implements a universal Thune system. This design uses the DNA’s ability to replicate to execute an exponential number of paths. Their paper shows that this design works using in vitro molecular biology experimentation and computation modeling. Currently, the field of DNA computing is in its nascent stage, and it’ll take a long time to develop a working DNA computer. But, whatever might be the rate of progress, the concept surely sounds exciting.

<https://fossbytes.com/dna-computer/>

**Mathematical model**

Mathematical models can take many forms, including dynamical systems, statistical models, differential equations, or game theoretic models. These and other types of models can overlap, with a given model involving a variety of abstract structures. In general, mathematical models may include logical models. In many cases, the quality of a scientific field depends on how well the mathematical models developed on the theoretical side agree with results of repeatable experiments. Lack of agreement between theoretical mathematical models and experimental measurements often leads to important advances as better theories are developed.

In the physical sciences, a traditional mathematical model contains most of the following elements:

1. Governing equations

2. Supplementary sub-models

1. Defining equations

2. Constitutive equations

3. Assumptions and constraints

1. Initial and boundary conditions

2. Classical constraints and kinematic equations

**A mathematical model** is a description of a system using mathematical concepts and language. The process of developing a mathematical model is termed **mathematical modeling**. Mathematical models are used in the natural sciences (such as physics, biology, earth science, chemistry) and engineering disciplines (such as computer science, artificial intelligence), as well as in the social sciences (such as economics, psychology, sociology, political science). Physicists, mathematicians, engineers, statisticians, operations research analysts, and economists use mathematical models most extensively A model may help to explain a system and to study the effects of different components, and to make predictions about behavior.

Mathematical models are usually composed of relationships and *variables*. Relationships can be described by *operators*, such as algebraic operators, functions, differential operators, etc. Variables are abstractions of system parameters of interest, that can be quantified. Several classification criteria can be used for mathematical models according to their structure:

**Linear vs. nonlinear:** If all the operators in a mathematical model exhibit linearity, the resulting mathematical model is defined as linear. A model is considered to be nonlinear otherwise. The definition of linearity and nonlinearity is dependent on context, and linear models may have nonlinear expressions in them. For example, in a statistical linear model, it is assumed that a relationship is linear in the parameters, but it may be nonlinear in the predictor variables. Similarly, a differential equation is said to be linear if it can be written with linear differential operators, but it can still have nonlinear expressions in it. In a mathematical programming model, if the objective functions and constraints are represented entirely by linear equations, then the model is regarded as a linear model. If one or more of the objective functions or constraints are represented with a nonlinear equation, then the model is known as a nonlinear model. Nonlinearity, even in fairly simple systems, is often associated with phenomena such as chaos and irreversibility. Although there are exceptions, nonlinear systems and models tend to be more difficult to study than linear ones. A common approach to nonlinear problems is linearization, but this can be problematic if one is trying to study aspects such as irreversibility, which are strongly tied to nonlinearity.

**Static vs. dynamic:** A *dynamic* model accounts for time-dependent changes in the state of the system, while a *static* (or steady-state) model calculates the system in equilibrium, and thus is time-invariant. Dynamic models typically are represented by differential equations or difference equations.

**Explicit vs. implicit:** If all of the input parameters of the overall model are known, and the output parameters can be calculated by a finite series of computations, the model is said to be *explicit*. But sometimes it is the *output* parameters which are known, and the corresponding inputs must be solved for by an iterative procedure, such as Newton’s method (if the model is linear) or Broyden’s method (if nonlinear). In such a case the model is said to be *implicit*. For example, a jet engine’s physical properties such as turbine and nozzle throat areas can be explicitly calculated given a design thermodynamic cycle (air and fuel flow rates, pressures, and temperatures) at a specific flight condition and power setting, but the engine’s operating cycles at other flight conditions and power settings cannot be explicitly calculated from the constant physical properties.

**Discrete vs. continuous:** A discrete model treats objects as discrete, such as the particles in a molecular model or the states in a statistical model; while a continuous model represents the objects in a continuous manner, such as the velocity field of fluid in pipe flows, temperatures and stresses in a solid, and electric field that applies continuously over the entire model due to a point charge.

**Deterministic vs. probabilistic (stochastic):** A deterministic model is one in which every set of variable states is uniquely determined by parameters in the model and by sets of previous states of these variables; therefore, a deterministic model always performs the same way for a given set of initial conditions. Conversely, in a stochastic model-usually called a “statistical model”- randomness is present, and variable states are not described by unique values, but rather by probability distributions.

**Deductive, inductive, or floating:** A deductive model is a logical structure based on a theory. An inductive model arises from empirical findings and generalization from them. The floating model rests on neither theory nor observation, but is merely the invocation of expected structure. Application of mathematics in social sciences outside of economics has been criticized for unfounded models. Application of catastrophe theory in science has been characterized as a floating model.

**Classical mechanics**

In physics, **classical mechanics** (also known as **Newtonian mechanics**) is one of two major sub-fields of mechanics. The other sub-field is quantum mechanics. Classical mechanics is concerned with the set of physical laws describing the motion of bodies under the influence of a system of forces. The study of the motion of bodies is an ancient one, making classical mechanics one of the oldest and largest subjects in science, engineering and technology, though textbook authors often consider Newtonian mechanics, along with Lagrangian mechanics and Hamiltonian mechanics, as the three main formalisms of classical mechanics.

Classical mechanics describes the motion of macroscopic objects, from projectiles to parts of machinery, and astronomical objects, such as spacecraft, planets, stars and galaxies. Within classical mechanics are sub-fields, including those that describe the behavior of solids, liquids and gases. Classical mechanics provides extremely accurate results when studying large objects that are not extremely heavy (i.e. their Schwarzschild radius is negligibly small for a given application) and speeds not approaching the speed of light. When the objects being examined are sufficiently small, it becomes necessary to introduce the other major sub-field of mechanics: quantum mechanics.

This sub-field adjusts the laws of physics of macroscopic objects for the atomic nature of matter by including the wave-particle duality of atoms and molecules. When neither quantum nor classical mechanics apply and the objects are not extremely heavy, such as at the quantum level with high speeds, quantum field theory (QFT) becomes applicable. In case that objects become extremely heavy, deviations from Newtonian mechanics become apparent and can be quantified by using the Parameterized post-Newtonian formalism. In that case, General relativity (GR) becomes applicable. However, until now there is no theory of Quantum gravity unifying GR and QFT in the sense that it could be used when objects become extremely small and heavy.

The term *classical mechanics* was coined in the early 20th century. It describes the system of physics started by Isaac Newton and many contemporary 17th century natural philosophers. It is also built upon the earlier astronomical theories of Johannes Kepler, based on the precise observations of Tycho Brahe and the studies of terrestrial projectile motion of Galileo. Since these aspects of physics were developed long before the emergence of quantum physics and relativity, most sources exclude Einstein’s theory of relativity from this category. However, a number of modem sources *do* include relativistic mechanics, which in their view represents *classical mechanics* in its most developed and accurate form.

**History of classical mechanics**

Some Greek philosophers of antiquity, among them Aristotle, founder of Aristotelian physics, may have been the first to maintain the idea that “everything happens for a reason” and that theoretical principles can assist in the understanding of nature. While to a modem reader, many of these preserved ideas come forth as eminently reasonable, there is a conspicuous lack of both mathematical theory- and controlled experiment, as we know it. These later became decisive factors in forming modem science, and their early application came to be known as classical mechanics.

In his *Elementa super demonstrationem ponderum*, medieval mathematician Jordanus de Nemore introduced the concept of positional gravity” and the use of component forces.

Three stage Theory of impetus according to Albert of Saxony.

The first published causal explanation of the motions of planets was Johannes Kepler’s *Astronomia nova* published in 1609. He concluded, based on Tycho Brahe’s observations of the orbit of Mars, that the orbits were ellipses. This break with ancient thought was happening around the same time that Galileo was proposing abstract mathematical laws for the motion of objects. He may (or may not) have performed the famous experiment of dropping two cannonballs of different weights from the tower of Pisa, showing that they both hit the ground at the same time. The reality of this experiment is disputed, but, more importantly, he did carry out quantitative experiments by rolling balls on an inclined plane. His theory of accelerated motion derived from the results of such experiments, and forms a cornerstone of classical mechanics.

Sir Isaac Newton (1643-1727), an influential figure in the history of physics and whose three laws of motion form the basis of classical mechanics Newton founded his principles of natural philosophy on three proposed laws of motion: the law of inertia, his second law of acceleration (mentioned above), and the law of action and reaction; and hence laid the foundations for classical mechanics. Both Newton's second and third laws were given the proper scientific and mathematical treatment in Newton’s *Philosophice Naturalis Principia Mathematica*, which distinguishes them from earlier attempts at explaining similar phenomena, which were either incomplete, incorrect, or given little accurate mathematical expression. Newton also enunciated the principles of conservation of momentum and angular momentum.

**History of classical mechanics (2)**

In mechanics, Newton was also the first to provide the first correct scientific and mathematical formulation of gravity in Newton’s law of universal gravitation. The combination of Newton’s laws of motion and gravitation provide the fullest and most accurate description of classical mechanics. He demonstrated that these laws apply to everyday objects as well as to celestial objects. In particular, he obtained a theoretical explanation of Kepler’s laws of motion of the planets.

Newton had previously invented the calculus, of mathematics, and used it to perform the mathematical calculations. For acceptability, his book, the *Principia*, was formulated entirely in terms of the |long-established geometric methods, which were soon eclipsed by his calculus. However, it was Leibniz who developed the notation of the derivative and integral preferred today.

Hamilton’s greatest contribution is perhaps the reformulation of Newtonian mechanics, now called Hamiltonian mechanics.

Newton, and most of his contemporaries, with the notable exception of Huygens, worked on the assumption that classical mechanics would be able to explain all phenomena, including light, in the form of geometric optics. Even when discovering the so-called Newton’s rings (a wave interference phenomenon) he maintained his own corpuscular theory of light.

After Newton, classical mechanics became a principal field of study in mathematics as well as physics. Several re-formulations progressively allowed finding solutions to a far greater number of problems. The first notable re-formulation was in 1788 by Joseph Louis Lagrange. Lagrangian mechanics was in turn re-formulated in 1833 by William Rowan Hamilton.

Some difficulties were discovered in the late 19th century that could only be resolved by more modem physics. Some of these difficult if. related to compatibility with electromagnetic theory, and the famous Michelson-Morley experiment. The resolution of these problems led to the special theory of relativity, often included in the term classical mechanics.

A second set of difficulties were related to thermodynamics. When combined with thermodynamics, classical mechanics leads to the Gibbs paradoxof classical statistical mechanics, in which entropy is not a well-defined quantity. Black-body radiation was not explained without the introduction of quanta.

As experiments reached the atomic level, classical mechanics failed to explain, even approximately, such basic things as the energy level sand sizes of atoms and the photo-electric effect. The effort at resolving these problems led to the development of quantum mechanics.

**Fluid mechanics**

**Fluid mechanics** is a branch of physics concerned with the mechanics of fluids (liquids, gases, and plasmas) and the forces on them. Fluid mechanics has a wide range of applications, including mechanical engineering, civil engineering, chemical engineering, biomedical engineering, geophysics, astrophysics, and biology.

Fluid mechanics can be divided into fluid statics, the study of fluids at rest; and fluid dynamics, the study of the effect of forces on fluid motion. It is a branch of continuum mechanics, a subject which models matter without using the information that it is made out of atoms; that is it models matter from a *macroscopic* viewpoint rather than from *microscopic*. Fluid mechanics, especially fluid dynamics, is an active field of research with many problems that arc partly or wholly unsolved.

Fluid mechanics can be mathematically complex, and can best be solved by numerical methods, typically using computers. A modern discipline, called computational fluid dynamics (CFD), is devoted to this approach to solving fluid mechanics problems. Particle image velocimetry, an experimental method for visualizing and analyzing fluid flow, also takes advantage of the highly visual nature of fluid flow.

The study of fluid mechanics goes back at least to the days of ancient Greece, when Archimedes investigated fluid statics and buoyancy and formulated his famous law known now as the Archimedes’ principle, which was published in his work *On Floating Bodies* - generally considered to be the first major work on fluid mechanics. Rapid advancement in fluid mechanics began with Leonardo da Vinci (observations and experiments), Evangelista Torricelli (invented the barometer), Isaac Newton (investigated viscosity) and Blaise Pascal(researched hydrostatics, formulated Pascal’s law), and was continued by Daniel Bernoulli with the introduction of mathematical fluid dynamics in *Hydrodynamica* (1739).

Inviscid flow was further analyzed by various mathematicians (Leonhard Euler, Jean le Rond d’Alembert, Joseph Louis Lagrange, Pierre-Simon Laplace, Simeon Denis Poisson) and viscous flow was explored by a multitude of engineers including Jean Leonard Marie Poiseuille and Gotthilf Hagen. Further mathematical justification was provided by Claude-Louis Navier and George Gabriel Stokes in the Navier-Stokes equations, and boundary layers were investigated (Ludwig Prandtl, Theodore von Karman), while various scientists such as Obsorne Reynolds, Andrey Kolmogorov, and Geoffrey Ingram Taylor advanced the understanding of fluid viscosity and turbulence.

**Fluid statics**

Fluid statics or **hydrostatics** is the branch of fluid mechanics that studies fluids at rest. It embraces the study of the conditions under which fluids are at rest in stable equilibrium; and is contrasted with fluid dynamics, the study of fluids in motion. Hydrostatics offers physical explanations for many phenomena of everyday life, such as why atmospheric pressure changes with altitude, why wood and oil float on water, and why the surface of water is always flat and horizontal whatever the shape of its container.

Hydrostatics is fundamental to hydraulics, the engineering of equipment for storing, transporting and using fluids. It is also relevant to some aspect of geophysics and astrophysics (for example, in understanding plate tectonics and anomalies in the Earth’s gravitational field), to meteorology, to medicine (in the context of blood pressure), and many other fields.

Fluid dynamics is a subdiscipline of fluid mechanics that deals with **fluid flow** - the science of liquids and gases in motion. Fluid dynamics offers a systematic structure - which underlies these practical disciplines - that embraces empirical and semi-empirical laws derived from flow measurement and used to solve practical problems.

The solution to a fluid dynamics problem typically involves calculating various properties of the fluid, such as velocity, pressure, density, and temperature, as functions of space and time. It has several subdisciplines itself, including **aerodynamics** (the study of air and other gases in motion) and **hydrodynamics** (the study of liquids in motion).

Fluid dynamics has a wide range of applications, including calculating forces and moments on aircraft, determining the mass flow rate of petroleum through pipelines, predicting evolving weather patterns, understanding nebulae in interstellar space and modeling explosions. Some fluid-dynamical principles are used in traffic engineering and crowd dynamics.

**The Technology within an Industrial Robot**

An industrial robot may be defined as a device with five or more axes with servo-control, capable of being programmed for independent operation. Typically, two or three of these axes may be for a hand, gripper or wrist type of mechanism and the others for what can be considered a shoulder and arm, giving variable extension, rotation and elevation. However, there are no hard and fast rules as to what form an industrial robot must take, and their mechanical configurations differ considerably depending on makers.

Even now robots are unique products for all mechanical engineers across the world. Therefore the term “robot” itself requires clarification. Some engineers insisted even until recently that every robot must by all means be like us, people, and be capable of doing any job. Others were inclined to regard any manipulating device as a robot. The standard adopted in many countries defines an industrial robot as automated machine combining a manipulator and programmable control device designed to perform movement and control functions substituting for similar functions of man.

The technology within a robot is really well established from other branches of engineering. It is the detailed application of such technology to a robot that is different. Many features of NC machine tools, for example, can be compared directly with similar features of an industrial robot. The servo-systems for controlling the axes, the minicomputer controller, and memory of tape programming are all established features of existing machine-tool technology, and often the machine tool itself has adopted the technology from other previous developments. There is, therefore, plenty of application experience for robot control designers to draw upon.

The servo-drives for the axes may be pneumatic, hydraulic, or electric, or any combination of these methods. Pneumatic systems are not generally capable of very high accuracy of movement due to the compressibility of air, but they are of low cost and easy to maintain. Hydraulic drives have the capability of providing high forces and good control of speed and positioning. Electrically stepping motors or dc drive can be used.

The detailed mechanical design of an industrial robot is somewhat different from a machine tool. Industrial robots usually have a hand or wrist incorporating some form of gripper unit. Gripper units have been used in the nuclear machining for many years for the remote machining of radioactive or toxic materials. Such units were designed to perform a range of tasks, not just one simple handling operation. Simple gripper units have been developed for handling tooling as part of automatic tool changers. There exist many types of gripper units and transfer mechanisms.

**APPENDIX 1.**

**General scientific vocabulary and terminology**

* Dissertation - .Диссертация
* The Degree of Doctor of Science –докторская диссертация
* Характерные сочетания:
* Manuscript - рукопись
* Subject - тема
* plan - план
* section, part - раздел
* chapter of a dissertation – глава диссертации
* contents - содержание
* main ideas – основные положения
* defence - защита
* abstract - автореферат
* appendix to a dissertation – Приложения к диссертации
* publishing an article on the subject of the dissertation – Опубликование статьи по теме диссертации
* review of dissertation – Отзыв на диссертацию
* complete the dissertation – Писать / написать диссертацию
* defend a dissertation work – Защитить / защищать диссертацию
* approve a dissertation – Утверждать диссертацию
* devote the dissertation to smth – Посвятить диссертацию чему-либо
* **draw up** the plan of the a dissertation – **составить** план диссертации
* **compile** the bibliography for the dissertation – **собрать** библиографию к диссертации
* Collect material for the dissertation within limil-time – Собрать материал для диссертации вовремя
* Publish articles on the subject of dissertation – Опубликовать статьи по теме диссертации
* **Write** a summary of the dissertation – **Написать** проспект диссертации
* the first chapter of the dissertation – первую главу диссертации
* an introduction to the dissertation – введение к диссертации
* the conclusion of the dissertation – заключение к диссертации
* **Outline** the main ideas of the dissertation – **Изложить** основные положения диссертации
* **Substantiate** the main ideas of dissertation – **Обосновать** основные положения диссертации
* **Prove** the main ideas of dissertation – **Доказать** основные положения диссертации
* **Submit** the dissertation for defence – **Представить** диссертацию к защите
* **Present a review of the** dissertation – **Дать отзыв** на диссертацию
* **Receive a review of the** dissertation – **Получить отзыв** на диссертацию
* The dissertation raises important problems – Диссертация ставит важные проблемы
* The dissertation solves important problems – Диссертация решает важные проблемы
* a dissertation contains new scientific and technological data – Диссертация содержит важные научно-технические данные
* a dissertation consists of... chapters – Диссертация состоит из … глав
* the dissertation is a major contribution to science – Диссертация представляет собой крупный вклад в науку
* dissertation has been recommended for defence – Диссертация рекомендуется к защите
* The dissertation has been approved by the research and development council. – Диссертация одобрена научно-техническим советом.
* The subjects of dissertations are approved by the councils of higher Educational and research institutions – Темы диссертаций утверждаются советами вузов и научно-исследовательских учреждений.
* The abstract should give clear- cut expose of the subject of the dissertation – Автореферат должен ясно и точно раскрывать тему диссертации.
* The papers published give a profound expose of the subject of the dissertation – В опубликованных статьях глубоко раскрыта тема диссертации.
* Scientific-technological problem – Научно-техническая проблема
* Different problems – Различные проблемы
* Numerous problems – Многочисленные проблемы
* Problem of exceptional importance – Проблема исключительной важности
* Problem of tremendous theoretical significance – Проблема теоретического значения
* Problem in studying smth – Проблема изучения чего-либо
* Solution of a difficult problem – Разрешение трудной проблемы
* Problem in utilizing smth – Проблема использования чего-л

|  |  |
| --- | --- |
| The evaluation of the dissertation found its most comprehensive and convincing expressions in the review by an outside reviewer. | Оценка диссертации получила наиболее полное и убедительное выражение в отзыве рецензента |
| The review of the dissertation was written with due regard for the requirements imposed on doctoral dissertations. | Отзыв на диссертацию написан с учетом основных требований, предъявляемых к докторам диссертациям. |
| The review of the dissertation consists of practical comments and suggestions. | Отзыв на диссертацию состоит из практических замечаний и предложений. |
| The article will be published | Статья будет опубликована |
| The article is in print | Статья находится в печати |
| The article has come out | Статья вышла из печати |
| The article says that… | В статье говорится о том, что … |
| The article raises the question of… | Статья ставит вопрос о том, что … |
| The article gives the brief survey of literature | Статья дает краткий обзор литературы |
| The article contains interesting facts about… | В статье содержатся интересные факты о … |

**Paper, article – Статья**

Характерные сочетания:

* + scientific научная
  + popular популярная
  + popular-scientific научно-популярная
  + survey обзорная
  + published article опубликованная статья

|  |  |
| --- | --- |
| The annotation clearly reflects the contents of the book. | В аннотации четко выражено содержание книги. |
| It is impossible to elucidate all the problems in a brief annotation of the book. | В краткой аннотации невозможно светить все проблемы. |
| Requirements for an abstract | Требования к реферату |
| Write an abstract | Написать реферат |
| Publish an abstract | Опубликовать реферат |
| Compile an abstract | Составить реферат |
| Use an abstract | Использовать реферат |
| Dispense with the author’s abstract | Обходиться без реферата |
| Present a paper to a department | Представить реферат |
| Familiarize oneself with an abstract | Ознакомиться с рефератом |
| The abstract set out facts | В реферате излагаются факты |
| The abstract reveals the contents of smth. | В реферате раскрывается содержание |
| The abstract contains an analysis of … | В реферате содержится анализ |
| The abstract formulates the main proposition of smth. | В реферате формулируются основные положения чего-л. |
| The most essential and distinctive feature of an abstract is its information value. | Информативность является на существенной и отличительной чертой реферата |

|  |  |
| --- | --- |
| Report | доклад, отчет |
| foreword / preface | Предисловие |
| acknowledgements | благодарственная часть |
| table of contents | Содержание |
| introduction | Введение |
| body of the report | основная часть доклада, отчета |
| Conclusion | Вывод |
| recommendation | Рекомендация |
| Appendix | Приложение |
| Glossary | Глоссарий |
| Index | Указатель |
| Table | Таблица |
| Chart | Схема |
| Graph | График |
| to provide | Предоставлять |
| to clarify | Разъяснять |
| to draw up | Составлять |
| to analyze | Анализировать |
| to summarize | Резюмировать |
| Expository | пояснительный, разъяснительный |
| Analytical | Аналитический |
| informational | Информационный |
| Formal | Официальный |
| Factual | фактический, основанный на фактах |
| complicated | сложный, запутанный |
| Stiff | жесткий, трудный для восприятия |

|  |  |
| --- | --- |
| admissions office | приемная комиссия |
| director of admissions | председатель приемной комиссии |
| president (Am. E.) | Ректор |
| rector (Br. E.) | Ректор |
| Dean | Декан |
| Doctorate | Докторантура |
| full-time student | студент очного отделения |
| part-time student | студент – заочник |
| Department | Факультет |
| Advanced | передовой, продвинутый |
| Report | доклад, отчет |
| table of contents | Содержание |
| Introduction | Введение |
| body of the report (the thesis) | основная часть доклада (диссертации) |
| Conclusion | Вывод |
| Appendix | Приложение |
| Glossary | Глоссарий |
| Graph | График |
| Table | Таблица |
| Chart | Схема |
| to assess | Оценивать |
| to draw up | Составлять |
| to analyze | Анализировать |
| to summarize | Резюмировать |
| Expository | Пояснительный |
| Citation | Цитата |
| to cite | Цитировать |
| Draft | первая версия доклада |
| Outline | набросок, очерк |
| Conclusion | Вывод |
| Summary | резюме, реферат |
| Thesis | тезисы, диссертация |

**APPENDIX 2.**

**Useful vocabulary for annotation**

1. The article (text) is head-lined …

The head-line of the article (text) is …

2. The author of the article (text) is …

The article is written by …

3. It was published (printed) in …

4. The main idea of the article (text) is …

The article is about...

The article is devoted to …

The article deals with …

The article touches upon …

5. The purpose of the article is to give the reader some information on …

The aim of the article is to provide the reader with some material on …

6. The author starts by telling the readers (about, that) …

The author writes (states, stresses, thinks, points out) that …

The article describes …

According to the article (text) …

Further the author goes on to say that …

7. The article is (can be) divided into 4(5-7) parts.

The first part deals with (is about, touches upon) …

8. In conclusion the article tells …

The author comes to the conclusion that …

9. I found the article interesting (important, dull, of no value, easy, too hard to understand).

**APPENDIX 3.**

**Cliche for articles:**

|  |  |
| --- | --- |
| Статья о … | The article / The paper is about |
| Статья выдвигают проблему | The paper suggests the problem … |
| В статье обсуждается | The paper discusses … |
| Рассматривается | considers … |
| Исследуется | examines … |
| Анализируется | analyses … |
| сообщается | reports on … |
| затрагивается | touches upon … |
| Целью исследования явилось | The object of the study was |
| Много (мало) внимания уделено | Much (little) attention is given to … |
| В статье выдвигается идея | The paper puts forward the idea … |
| Обсуждаются данные по | Data on … are discussed |
| Проводится сравнение … | A comparison of … with … is made |
| Описываются методы, используемые для … | The methods used for … are discussed |
| Настоящее исследование является попыткой | The study is an attempt to … |
| Особый интерес представляет … | Of particular interest is … |
| Подчеркивается, что | It is pointed out that … |
| Показано, что | It is shown that … |
| Статья представляет интерес … | The paper is of interest |
| Статья предлагается … | The paper is addressed to … |

**APPENDIX 4.**

**Useful vocabulary for retelling articles**

The article I am going to render comes from the Daily Telegraph/ Washington Post/... issue.

It was published on the 12th of May, 2018.

The title of the article is...

The author(s) of the article is (are)...

The story / article deals with / is concerned with

describes / examines / reveals / exposes

dwells on / explains / addresses / discusses

presents / covers / outlines / states

offers / considers / looks into / treats

The problems addressed in the article are acute / urgent / vital / burning.

The action takes place in ...

The story is set in ...

The scene is laid in ...

As the story unfolds,...

The story centres round ...

… is the main thread of the story.

The article deals with the burning problems of life: politics, economics, education, marriage, and so on.

The author’s attitude is a broad reflector of the aims, confusions, concerns, ideas, and attitudes of...

The article is marked with pessimism/optimism.

The author gives an account of...

The author’s attention is focused on ...

The author remains concentrated on these problems throughout the article.

The article is...

I find this article interesting / entertaining / exciting / gripping / amusing / enjoyable / funny / witty / banal / skillfully developed / slow-moving / fast-moving/ topical /outdated/ boring...

**APPENDIX 5.**

**Useful vocabulary for Presentation**

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| Introductory Section | Formal/Neutral | Informal |
| Welcoming a speaker | I’d like to introduce ...  I’d like to welcomc ...  It’s a pleasure to welcome On behalf of., may I welcome to | It’s good to have, here |
| Thanking someone | Thank you for giving me this opportunity to speak to you today.  Thank you. I’m glad to be here. | Thanks. It’s great to be here. |
| Greeting people | Good evening, ladies and gentlemen.  Hello. Thank you all for coming. | Moming everyone. Welcome.  Hello. It’s good to see you all here.  Thanks for coming. |
| Getting people’s attention | Perhaps we should begin. Fine. If we are all here, I’ll begin.  Right. If everyone’s ready, let's start. | Ok, let’s get started. Ok, let’s make a start. |
| Introducing yourself | Let me introduce myself.  I’m .  Before I continue, let me tell you something about myself.  My name is ...  For those who don’t know me, my name is . and I’m the managing director.  I’m responsible for … | As you know, I’m. I’m in charge of. I’m Senior Sales Executive. |
| Effective Openings | Suppose . How would you. Statistics show that...  According to the latest study,  I noticed in the news last weak | On the way here, I saw. A funny thing happened to me the other day ...  You know, ...  When I think about.  I’m reminded of.  Did you know that... How many of you hate?  Raise you hands. Thanks. |
| Explaining why you are talking (Stating your purpose) | I’ve been asked to speak to you about...  My purpose today is to ... My objective today is to Sam . asked me lo present ray ideas.  promised to report the results of our survey to you. Today I'd like to talk about. This morning I’m going to be talking to you about Today I would like to give you a genera! overview of. Today I’m going to report on the results of.  Today I’ll be showing you how to deal with.  This afternoon we will be exploring.  In my presentation today I’ll be outlining... | What 1 want to do this morning is.  The reason we are here today is to.  What I am going to do today is to review.  There are some important issues I want to go through this morning. |
| Outlining a presentation | So, I’ll begin by filling you in on the background to (the project).  ... and then I’ll go on to highlight what I see as the main...  I’m going to develop three main points. First,  ... Second, .Third,... I’ve divided my presentation into three main points. I would like | 1 want to start with ... And then . lastly . First, I want to focus on  After that I .  Finally, I want to outline |
| Stating what the audience need to do Questions Handouts | If you have any questions, I’d be grateful if you could leave them until the end.  Perhaps we can leave any questions you may have until the end of the presentation.  If you have any questions you’d like to ask, I’ll be happy to answer them. Please feel free to interrupt me at any time if you have a question.  I’ll pass round copies of my slides so you can make notes as I go through the presentation.  You don’t need to take notes as we’ll be handing out presentation booklets.  I have copies of the statistics and tables. I’ll give these to you later. The figures are on a sheet which vou can have later. | I’m happy to take any questions after that. Please feel free to ask questions as we go along  Please save any questions for the end of the talk.  I’m happy to answer any questions as I talk.  Don’t worry, there’ll be plenty of time left over the questions at the end.  If you have any questions, please feel free to stop me. Don’t worry about taking notes while I talk. I have a handout with the main points of my presentation, which I'll give you after end.  Before I start, I have a handout for you.  Would you like to take one?  Here you are.  Please feel free to give me vour feedback. |

|  |  |  |
| --- | --- | --- |
| Timing | You all have a copy of the handout with the graphs and  statistics.  Here are some tables which illustrate what I’m saying.  I have copies of these and the statistics I’ve mentioned on this handout. Here you are. Please take one each and pass them round. Did everyone get a copy? Would you like one of these? Would you like to take one of these as I pass them round? | Please take a leaflet.  Help yourselves to a brochure.  Please make comments as I talk.  The presentation should last about five minutes.  It will take about 20 minutes to cover these issues.  My presentation will take about 30 minutes.  This will take about thirty to forty minutes. This won’t take me more than … |

|  |  |
| --- | --- |
| 1 | 2 |
| Linking words |  |
| Sequence | Firstly, … Secondly, … Finally, … First (of all) … Then … Next … Finally / Lastly … |
| Generalizing | In general, … On the whole, …  Usually, …  As a rule, … Typically, … Basically,  Broadly speaking, … Briefly, … To put it briefly, … |
| Contrast | But, … However, … Nevertheless, … On the other hand, Still, Yet,  Even so, Although, Even though, Though, … In spite of the fact that,  Despite the fact that, While … |
| Adding another point | In addition, Moreover, What is more, Furthermore, Apart from this/that  In addition (to this), Besides (this) |
| Examples | For example, For instance, Such as, Like, Particularly, In particular, Especially, … |
| Alternatives | Either, or, Alternatively, Instead of |
| Real (surprising) situation | In fact, Actually, As a matter of fact, In practice, Indeed, … |
| Something is obvious | Clearly, Obviously, Of course, Naturally, Needless to say, … |
| Clarifying / rephrasing | In other words, That is today, To put it another way, … |
| Advantages and disadvantages | One advantage of, Another advantage of, A further advantage of, The main advantage of ,The greatest advantage of, The benefits of  One disadvantage of, Another disadvantage of  One of the drawbacks of, pros and cons of, The advantages and disadvantages of |
| Expressing cause | Because of, Owing to (the fact that), Due to (the fact that)  Since, As … For this reason |
| Expressing effect / result | Thus, Therefore, So, As a result, As a consequence, Consequently |
| Purpose | With the purpose / intention of. In order to. So that … |
| Personal opinion | In my opinion / view, As far as I am concerned, I think that, To my mind |
| Partially true statements | Up to a point, … To some extent, … To some degree, … in a sense, … In a way |
| Expressing limited knowledge | As far as I know … To the best of my knowledge … |
| Referring to some sources | According to … With reference to … |
| Similarity | Similarly, … In the same way … |
| Summarizing | Briefly, … To put it briefly, … In short |
| Concluding | On balance, … For the above mentioned reasons, To sum up, All things considered, … Taking everything into account / consideration, In conclusion, Taking all the above points into consideration, … |

**Signposting (transitions)**

|  |  |
| --- | --- |
| 1 | 2 |
| Making your next point (changing from one subjects to another) | Moving on to the question of...  Let me move on to the next question/issue My next point is .  As far as . is /are concerned .  Now that we have explored the ... I’d like to move on to  Let’s turn to the advantage of...  I’d now like to change direction and talk about... I’d like to turn to.  Now, turning to... |
| Referring to an earlier point | Let’s go back to the question of...  Going back for a moment to the situation . To go buck to the main reasons for .  Let’s go back for a moment to what we were discussing earlier...  I said earlier that...  In my last point, 1 mentioned that.  As I’ve already explained ...  At the beginning of the talk I said ... |
| Repeating the mean point | I’d like to recap on the main points ...  So, let’s recap on that...  Let me just recap what’s been said so far. |
| Giving a wider perspective (more details, new information) | I’d like to expand on that a little before we move on. Let me expand on some of the main points ...  To elaborate on that a little for those who aren’t familiar with... |
| Moving away from the main subject | To digress for a moment, let’s consider ... To move off the  point for a moment... |
| Emphasizing your points | What’s especially important is ... I’d like to emphasize (stress)  The main thing is.  What I really want to stress is ... |
| Explaining the meaning of abbreviations | WTO stands for World Trade Organization |

**Exploiting visuals**

|  |  |
| --- | --- |
| Asking listeners to look at your visuals | Have/take a look at this graph. The vertical axis shows .and the horizontal axis represents .  As you can see from the slide/graph/chart You can see from this slide that I’m going to cover three main points. I’ll leave this up as I talk so that you can follow the points.  This slide shows.  From this graph you can see.  Each line indicates. You can see from the key which line represents For example, the dotted line shows.  This table shows .  The unbroken line show'.  The broken line represents.  The bar charts shown here indicate. |
| Commenting on the content of a visual | Look at the following pie-charts showing.  I’d like to focus our attention on ...  This chart compares ...  I would like to concentrate on this green column ... I’d like to draw  your attention to...  Looking at this graph it is interesting to note .  As you may have noticed .  Looking at the trend in sales during that time, you can see...  The two diagrams give figures .  If you look at it more closely, you’ll notice ...  I'd like us to look at... in more detail.  Let’s move on now and look at the figures for... Let’s move on to the statistics.  I’d like to point out that...  What is interesting/important/warring/surprising/of concern here is … |

**Concluding**

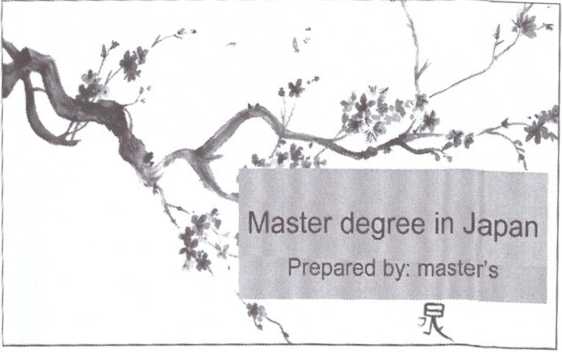
|  |  |
| --- | --- |
| Making a final point (signal) | As a final point, let me raise a general issue.  As a final point, I’d like ...  So, that brings me to the end of my presentation ... So, that completes our presentation.  Well, that covers everything I want to say.  To conclude, I’d like to introduce one final point |
| Summarizing main points | So, to sum up, first I outlined the problem that we face and I gave three reasons for this problem. 1 then presented .  Let me summarize what we’ve looked at.  I’ll briefly summarize the main issues.  I’d like to summarize.  Let me just go over the key points again.  To sum up.  In this presentation I wanted to explore .  To summarize, I’ll run through my three topics.  I’ll briefly summarize the main issues.  I’d like to conclude by strongly recommending . Following what I have said today, I recommend that To quote a well-known business leader,.  As Bill Gates once said,.  I hope to have been able to show that the effect of... This does of course highlight the need for further research in the area of... |
| Closing remarks | Thank you for your attention.  Thank you for listening.  Many thanks for coming.  If you have any questions, I’d be happy to answer them.  Are there any questions or comments?  I’d welcome your comments.  I’ll now hand out... |
| Telling people how to contact you. | If you need to contact me, my email address and work number are on the screen.  Please feel free to contact me. It would be useful to have your feedback.  You are welcome to get in touch.  Please email me if you have any questions. |

**APPENDIX 6.**

**SAMPLES OF MASTER’S INDIVIDUAL STUDY**

**(Power Point Presentation)**

**1. Master’s degree in Japan**



**Requirements for applicants**

1. At least 16 years of finished education (12 of school + 4 of bachelor degree)

2. Knowledge of Japanese language (Japanese-Language Proficiency Test)

3. Find supervisor

4. Financial stability (National universities: ¥535.800 ($4.875) per year + ¥282.000 ($2.565) for admission fee. Local public universities: ¥535.948 ($4.876) per year + ¥374.913 ($3.410) for admission fees.)

5. It is likely to have bachelor degree in the same specialty as you chose in magistracy, but it is not obliged

**Content**

1. Requirements for applicants

2. Selection process and entrance exams

3. Education

4. Job search and graduation

5. Comparison

6. References

**Education**

The master degree duration is 2 years During 3 semester you must take defined amount of credits, probably near 30 and last semester is foi master dissertation.

You can organise you time schedule by yourself

**6. References**

1. <https://www.findamasters.com/study-abroad/asia/masters-study-in-japan.aspx>

2. <https://habrahabr.ru/post/178277>

3. <https://www.hotcourses.ru/study-in-japan/choosing-a-universitu/applying-to-a-japanese-university/>

4. <http://www.u-tokyo.ac.jp/en/academics/grad_ist.html>

5. <http://www.i.u-tokyo.ac.jp/edu/course/cs/pdf/H30csguide_e.pdf>

6. <http://www.u-tokyo.ac.jp/en/prospective-students/tuition_fees.html>

7. <http://vesper-canary.livejournal.com/12559.html>

**Selection process and entrance exams**

Public universities in Japan commonly operate a two -step selection process Candidates who are successful at the document screen inn stage will be interviewed. Applicants who live in Japan will be invited 1o the university for an interview while applicants outside Japan will have the option of being interviewed via video conferencing. Dress code.

For Tokyo University exams held in August and February. Exam’s. titles: Mathematics, Information Mathematics, Numerical Algorithms, Discrete Mathematics, Algorithms and Complexity, Formal Languages, Logic, Programming Languages, Computer Architecture, Operating Systems: Machine learning, Graphics, Natural Language Processing, Bioinformatics, in addition to the topics listed above.

**2. Master’s education in UAE**

Master’s

education

in UAE

**Classification**

Higher education institutions can be divided into the following categories:

1. Federal institutions funded by the U.A.E. government

2. International universities that have international accreditation and quality assurance

3. Local universities accredited by the CAA but without international accreditation or quality assurance



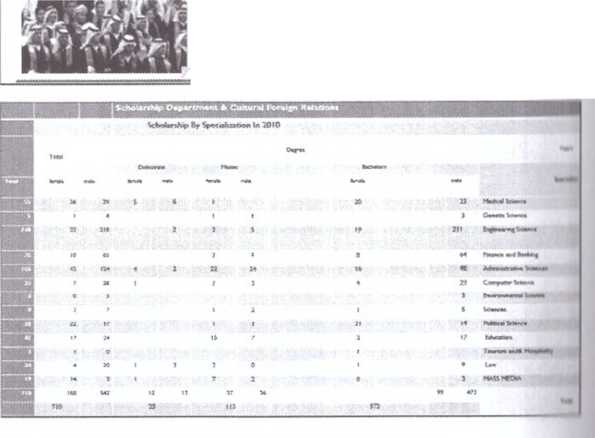
* + At public universities, the medium of instruction is Arabic, with emphasis on English as a second language, while almost all private universities teach in English
  + All universities must have accreditation eligibility from the UAE Ministry of Higher Education and Scientific Research.

**Degrees**

1. Bachelors

2. Masters

3. PhD



* Master’s degrees are available in a wide range of subjects, with the most popular programs being business, management, marketing and information technology (IT).
* Many programs offer both full and part time studies, evening classes and accelerated programs with year-round attendance.
* Master’s programs are aimed at non-UAE professionals who work in the UAE and are taught in languages other than Arabic, primarily English



**Academic Year**

* The typical academic year includes two semesters, although some accelerated programs use a three-semester system with somewhat compressed schedules.
* Fall semester runs from September through December or January
* Spring semester runs from January or February through June



**Admission Procedure**

**Entrance Exams:**

TOEFL, IELTS

**Intakes:**

January, May, July, August, September, November

**Application Process:**

* All the applicants must submit certified true copies of relevant documents along with the applicate form
* The university will decide on the recognition of your academic background and will decide at which level you can quality to enter
* Once the application is successful you will receive a conditional / confirmation offer letter from them which can be used to apply for student resident visa.
* Visa procedure takes a week after you apply for visa.
* As you get approval for visa you can book your tickets.

**Eligibility in the Postgraduate Study**

* To get admission to any postgraduate program, one must have a bachelor’s degree that is recognized in UAE and the home country.
* For admission to programs other than an MBA, one needs bachelor's degree along with TOEL or IELTS.
* If a student wants to seek admission to an MBA program in UAE, he/she should have relevant work experience of 2-4 years depending upon the program and the university they have applied



* **Part time work during studies**

International students are not allowed to work part time. Currently, UAE labor law does not allow international students to undertake paid work.

* **Work opportunities after studies**

Students with full time work offer after studies must change from the university sponsored visa to an employer sponsored visa to work full time in UAE. Employer sponsored visas are not given for part time work.



**Comparison**

|  |  |
| --- | --- |
| Similarity  1. Higher education institutions categories  2. Degrees  3. Existing of scholarship’s system  4. Popular programs  5. Academic year  6. Entrance exams (IELTS, TOEFL)  7. Educational portal | Difference  1. Library system  2. University location  3. Cost  4. Labor law  5. Languages  6. Teaching Staff  7. Amount of scholarship  8. Intakes  9. Eligibility |

**Top MBA Universities**

* Al Ghurair University (AGU)
* University of Dubai (UD)
* Zayed University
* Biotechnology University College Dubai (BUC)
* The Higher Colleges of Technology (HCT)
* American University in Dubai (AUD)
* University of Wollongong in Dubai (UOWD)
* British University in Dubai (BUiD)
* American University in the Emirates (AUE)

**3. Master’s degree in the USA**



**MASTER’S DEGREE in the USA**



**The USA is one of the main international educational directions. Study in America attracts foreign students with high quality of teaching, a lot of demanded programs and brilliant career prospects. US universities are leading in International educational ratings. 42 American universities are among the top 100 best universities in the world, according to the Times. US universities also account for 30% of the top 100 QS World University Rankings 2015/2016.**



**The master’s degree in the United States lasts one or (more) two years and usually combines instruction with the performance of a research project or project.**

**In the United States, the master’s degree is of two main types: Master of Arts (MA) and Master of Sciences (MS). Master in Business Administration has a separate title (MBA).**

**Universities of the USA**



**The US is famous for its**

**I heavyweight universities –**

**Harvard, Stanford, MIT and**

**others. However,**

**throughout the country the**

**choice of excellent**

**universities is by no means**

**limited to those that are**

**part of the Ivy League. In the US, 1,700 state and 2,500 private universities, colleges and community colleges.**

**Master's programs exist only in universities, while in colleges it is usually possible to obtain only a bachelor's degree.**

**The most prestigious universities in the USA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Rank** | **University** | **THE** | **ARWU** | **OS** | **US News** |
| **1** | **Harvard University** | **2** | **1** | **2** | **2** |
| **2** | **Stanford University** | **3** | **2** | **3** | **5** |
| **3** | **Massachusetts Institute of technology** | **4** | **4** | **1** | **7** |
| **4** | **Princeton University** | **5** | **6** | **6** | **1** |
| **5** | **California Institute of Technology** | **1** | **5** | **6** | **10** |
| **6** | **Yale University** | **8** | **9** | **4** | **3** |
| **7** | **University of Chicago** | **7** | **8** | **5** | **5** |
| **8** | **Columbia University** | **10** | **7** | **9** | **4** |
| **9** | **University of Pennsylvania** | **12** | **13** | **8** | **7** |
| **10** | **University of California, Berkeley** | **6** | **3** | **14** | **20** |



**Like in many other countries, enrolling in a Master's program in the US can be both very complex and simple enough, depending on the university and the specific program. Sometimes applicants only need to provide a translation of a diploma of first higher education, an application and a certificate of passing the English language test (IELTS or TOEFL), and sometimes it needs to add a letter with recommendations and pass a GMAT test.**

**How to make the right choice**

**It is necessary to carry out a comparative analysis of selected higher education institutions in such parameters as:**

* **availability of master’s programs of interest to you;**
* **area of training;**
* **university rating;**
* **the cost of training and what is included in the payment of the program;**
* **payment period;**
* **program start dates;**
* **terms of admission;**
* **University location (cost of living);**
* **the possibility of obtaining financial assistance;**
* **additional features (if any).**

**Standard package**

**Standard package**

**To enter the magistracy In American universities, students must collect a certain package of documents:**

**1. IELTS or TOEFL certificate (to confirm the level of English proficiency);**

**2. Notarized translation of the diploma and the inscription with the marks;**

**3. motivation letter (essay);**

**4. Two (sometimes three) characteristics;**

**5. resume;**

**6. GMAT or GRE certificate (for some programs);**

**7. valid international passport.**

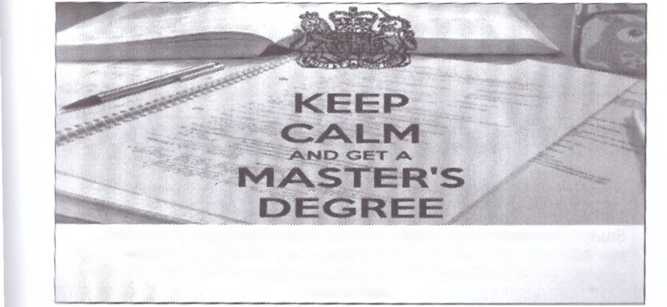
**Tuition fees in the USA**

**The cost of studying for Master’s programs also varies depending: on the university (private or public), training programs and even sometimes on the student’s nationality (more precisely, citizenship). If, for example, an inhabitant of the state where the university is located pays an average of $ 12,000 a year, then a resident of another state or a foreign student must pay $ 30,000. Typically, the cost of training for foreign students does not exceed $ 35,000 per year, but there are exceptions. This should be added and the cost of living, which in some areas and cities in the United States can lead to a round sum. In this respect, it is most profitable to live in small student cities, which are very numerous in the United States.**

**Scholarships and grants for study in the USA**

**Despite the rather high cost of studying at a magistracy in the US, there are many opportunities for scholarships, grants and educational loans.**

**The Fulbright International Exchange Education Program is one of the largest scholarship programs in the United States. Here, as graduates of higher education institutions and graduate students, as well as scientists, university professors and even artists can find financing. You can get a grant for studying in the Master’s program of universities of the USA under the program of Edmund Mask.**



**Master's degree in the USA is highly appreciated by employers. Graduates of such programs rarely experience difficulties with work both in the US itself and in other countries.**

**APPENDIX 7.**

**List of tasks for master’s individual study.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attestation period | MIS | Task | Work to submit | Assessment |
| MIS 1  My learning style | Research and identify your own learning style (individual) | 1. Summary on different learning styles models (a table to be filled in).  2. Reflection on the results (your own answers to the given questions) | 10 points |
| MIS 2  Education in master’s degree in Kazakhstan and abroad | Compare Education in master’s degree in Kazakhstan and abroad (individual) | 1. Compare Education in master’s degree in Kazakhstan and abroad. Present and be ready to discuss this with your group.  2. Reflection on the results (your own answers to the given questions) | 10 points |
| MIS 3  “My scientific research”. | Speak about “My scientific research”, about your scientific supervisor, relevance of research, purpose of the study. | Use Questions on the Master’s Scientific Activity, Collocations with research and helpful vocabulary. | 10 points |
| MIS 4  Time management | Consider how you spend your time (individual) | 1. Describe your typical day and typical week. Present and be ready to discuss this with your peers.  2. 5 tips on how to use time well (time savers vs time wasters). | 10 points |
| MIS 5  Success story | Interview KazNU graduate or a professor who knows English. | 1. A list of questions  2. Recorded interview as an evidence  3. An essay 250-300 words | 10 points |
| MIS 6  Study strategy for Finals Week | Plan your success strategy | 10 study strategies for Finals week | 10 points |

**APPENDIX 8.**

**Symbols and formulas**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| + | plus, addition, positive | µ | micron |
| - | minus, subtraction, negative |  | belongs to |
|  | plus or minus |  | is contained in |
|  | multiplication sign |  | is not contained in |
|  | sign of division, ratio sign | 0 | degree |
| = | sign of equality, equals, (is) equal to | % | per cent |
| ≈ | approximately equal, approaches | / | minute, foot |
| → | approaches, tends to, corresponds to | // | second, inch |
| > | greater than | *A’* | *A* prime |
| < | less than | *A’’* | *A* second |
| ≥ | equal to or greater than | *B1* | *B* sub one |
| ∞ | Infinity | *B2* | *B* sub two |
| √a | the square root of *a* | *Cb* | *C* sub *b* |
| 3√a | the cube root of *a* | *dX* | differential of *X* |
| n√a | the *nih* root of *a* | *dY/dX* | the first derivative of *y* with respect to *x* |
| || | parallel to | ∫ | integral of |
| ┴ | perpendicular to, a perpendicular  mark | *f(x)* | function of *x* |
| AB | length of line from A to B | *R(x)* | *R* of *x* |
|  | Angle | 1/2 | one half, a half |
| ∟ | right angle | 1/3 | one third |
| □ | Square | 4/7 | four sevenths |
| () | round brackets, parentheses | 21/3 | two and a third |
| [] | square brackets, brackets | 0.3 | nought point three, zero (nill, null) point three |
| {} | Braces | .2 | point two |
| C=1,2,… | (where) C is equal to 1, 2 and so on | 2.4 | two point four |
| & | And | 4:2 | the ratio of four to two |
| . | Full stop | *a:b* | the ratio of *a* to *b* |
| : | colon | f(s)=Kab*f* | of s is equal to *K* sub *ab* |
| ’ | Comma | *x ≈ y* | *x* is approximately equal to *y* |
| ; | semicolon | *x<<y* | *x* is negligible compared to *y* |
| ‘ | apostrophe |  | is defined to be equal to *y* |
| 3+5=8 | three plus five equals eight | LCM | lowest common multiple |
| *a+b=c* | *a* plus *b* equals *c* |  | limit as *x* approaches *y* |
| *a-b=c* | *a* minus *b* is equal to *c* |  | limit as *x* approaches *y* from above |
| 10-6=4 | ten minus six equals four; ten minus six is equal to four |  | limit as *x* approaches *y* from below |
|  | once one is one | ln | natural logarithm |
|  | twice two is four | 22 | two squared |
|  | three times three is nine | 43 | four cubed |
|  | 10 multiplied by 7 equals Seventy | 3/4 km | three quarters of a kilometer |
| 15:3=5 | fifteen divided by three equals five | 74.5 °F | seventy-four point five degrees Fahrenheit |
|  | *a* multiplied by *b* equals *c* | 20 °C | twenty degrees Centigrade |
| *a:b=c* | *a* divided by *b* is equal to *c* |  | a tringle |

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**CONTENT**

**Part 1. General - Educational texts**

1. English as the international language

Master’s individual study (MIS)-l “My learning style”

2. KazNU al Farabi as a leading center for research and education

3. The Faculty of Mechanics and Mathematics

4. Educational Programs

5. Master’s programs at KazNU

6. Master’s Degrees abroad (Canada, United Kingdom)

Master’s individual study (MIS)-2 “Education in master’s degree in Kazakhstan and abroad”

**Part 2. Scientific research**

7. Research activity of KazNU. Policy of research activity

8. Master’s scientific research activity

9. My scientific interests

Master’s individual study (MIS)-3 “My scientific research”

10. Participating in an international conference

11. Science and technology

12. What science is?

13. Research: Fundamental and Applied Science

14. Experiment and theory

15. Scientific Style

16. Scientific Report

17. Writing summaries and reports

**Part 3. Careers and future job**

18. Motivating job

Master’s individual study (MIS)-4 “Time management”

19. Job interview

Master’s individual study (MIS)-5 “Success story”

20. Making Presentations

Master’s individual study (MIS)-6

“Study strategy for Final Week”

**Part 4. Texts for reading**

1. What is a DNA computer? How does it work?

2. Mathematical model

3. Classical mechanics

4. History of classical mechanics

5. Fluid mechanics

6. Fluid statics

7. The Technology within an Industrial Robot

1. Appendix. General scientific vocabulary and terminology

2. Appendix. Useful vocabulary for annotation

3. Appendix. Cliche for articles

4. Appendix. Useful vocabulary for retelling articles.

5. Appendix. Useful vocabulary for presentation

6. Appendix. Samples of master’s individual study

7. List of tasks for master’s individual study

8. Appendix. Symbols and formulas

**Bibliography**

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Ulzhalgas Bikenovna Adilbayeva

**ENGLISH FOR MASTER’S DEGREE FOR THE FACULTIES OF MECHANICS-MATHEMATICS AND INFORMATION TECHNOLOGY**

*Educational-methodical manual*

Typesetting and cover design U. Moldasheva

IB JV2I2281

Signed for publishing 28.09.2018 Format 60x84 '/lt. Offset paper. Digital printing. Volume 8 printer’s sheet. 120 copies. Order .Vs6112. Publishing house «Qazaq University»

Al-Farabi Kazakh National University KazNU, 71 Al-Farabi, 050040, Almaty

Printed in the printing office of the «Qazaq University» publishing house.